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SLAVERY IN THE ANCIENT WORLD

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I

As the subject of this paper is the economic importance of slavery, little need be said of domestic servants. It should, however, be emphasized that the proportion of slaves absorbed by domestic service must at all periods have been considerable, for, by and large, personal servants were always slaves, and they were employed in numbers which by modern standards seem very lavish. Moralists continually denounce the luxury of the rich who counted them by the hundred or even the thousand, and if their figures are suspect, we have the well attested case of Pedanius Secundus, prefect of the city under Nero, whose town house was served by a staff of 400.[1] Slaves were, moreover, employed by persons of relatively humble means. In the fourth century B.C., according to Demosthenes, even the poorest of those who paid the war tax, peasant farmers with a holding of six or seven acres, might well own a maidservant.[2] In the fourth century A.D., private soldiers in the Roman army quite commonly owned a slave or two:[3] S. Martin is commended by his biographer for his asceticism in restricting himself to one slave batman.[4] For academic readers, Libanius' plea for his four lecturers is perhaps the most illuminating evidence which can be quoted for the high standard of domestic service prevalent in antiquity. They were, according to Libanius, miserably paid. Those who had a house laboured under a heavy mortgage; others lived in lodgings 'like cobblers'. They could barely afford to marry, and congratulated themselves if they had only one child. They owed money to the baker, and had to sell their wives' trinkets to meet the bill. These unfortunates could afford only three slaves, or even two, who were insolent to their masters because they had not many fellow servants.[5]

Slaves were also commonly employed throughout antiquity in secretarial and managerial posts. In fifth-century Athens, Nicias entrusted his mining interests to a slave, for whom he is alleged to have paid the fantastic price of one talent.[6] In fourth-century Athens, bank managers were often slaves or freedmen of the owners: Archestratus entrusted his bank to his slave Pasion, whom he freed and to whom he ultimately bequeathed the business, and Pasion in his turn, when he retired, leased the bank to his freed slave Phormio.[1] This habit of employing slaves in managerial positions of trust sometimes resulted in curious anomalies. In the early imperial fleet the ratings were free provincials, but the captains of the ships were slaves of the emperor, and the admirals his freedmen.[2] The bailiff or agent of a farm or estate was commonly a slave of the owner, but the working tenants whose rents he collected and whose work he supervised were under the Principate commonly free men.[3]

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[1] Tacitus, *Annals*, XIV, 43.

[2] Dem[osthenes], XXIV, 197; cf. my *Athens of Demosthenes* (Cambridge, 1952), pp. 9–11.

[3] *Cod*[*ex*] *Theod*[*osianus*], VII, xiii, 16, xxii, 2.

[4] Sulpicius Severus, *Vita S. Martini*, 2.

[5] Lib[anius], *Or*[*atio*], XXXI, 11.

[6] Xen[ophon], *Mem*[*orabilia*], II, v, 2.

The reason why slaves and freedmen were preferred for posts of this kind was that self-respecting free men were unwilling to accept positions in which they had to obey the orders of an employer. The point is well put in a dialogue reported by Xenophon between Socrates and a certain Eutherus.[4] Eutherus had lost his property overseas owing to the war, and was reduced to earning his living as a manual labourer. Socrates warns him that his strength will fail with advancing age and no one will be willing to hire him, and suggests that he seek employment as a works manager or estate agent of a wealthy man. Eutherus is shocked: 'I would find it hard to endure slavery' he replies, and after further argument sums up his attitude: 'I absolutely refuse to be liable to be called to account by anyone.' This is a particularly interesting case; Eutherus not only preferred manual labour to blackcoated employment, he was willing to hire his labour to an employer, but not to forfeit his independence by accepting a position which involved personal service to a master.

Employers no doubt also preferred to use in positions of trust men whose characters they knew, and on whose obedience they could rely; slaves could be chastised if they disobeyed instructions, and freedmen had formed the habit of executing their masters' orders. Cicero approved the old custom (still prevalent in his own day) whereby magistrates appointed as their secretaries (*accensi*) their own freedmen, 'to whom they used to give orders not very differently than to their slaves'.[5] During the early Principate this practice produced a glaring anomaly. The emperor's secretaries and accountants (*ab epistulis, a libellis, a rationibus*) became inevitably Secretaries of State and Ministers of Finance, and yet as inevitably these posts had to be filled by imperial freedmen; no Roman of standing would have demeaned himself by becoming the emperor's personal servant. The aristocracy bitterly resented the power and wealth of Pallas, Narcissus and the other great imperial freedmen, but the problem was insoluble until eventually, after over a century had passed, these secretarial posts acquired sufficient status to rank as public offices and to be acceptable to members of the equestrian order—though never to senators.[6]

II

The slave manager or agent is an interesting figure, but it is slave workmen with whom this paper is concerned. What were their numbers at various times and places, compared with the numbers of the free working population? How were they obtained, by breeding or by purchase, and what did they cost? On what kind of work were they employed and under what conditions? What was the relative cost to the employer of servile and free labour, and how did their standard of living compare?

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[1] Dem. XXXVI, 4–7, 43 *et seq.*; cf. *Econ. Hist. Rev.* VIII (1955), 152, n. 8.

[2] The evidence is given in C. G. Starr, *The Roman Imperial Navy* (Ithaca, N.Y., 1941), pp. 32, 44, 69. *Pace* Professor Starr, I think that the inscriptions which he cites show that the trierarchs were often Imperial slaves.

[3] W. E. Heitland, *Agricola* (Cambridge, 1921), pp. 361 *et seq.*; see *Dig*[*est*], XXXIII, vii, 20, § 3 for a farm bequeathed with its (slave) *actor* and the arrears of its (free) *coloni*.

[4] Xen. *Mem.* II, viii, 1–5.

[5] Cicero, *Epistulae ad Quintum fratrem*, I, i, 13.

[6] A. M. Duff, *Freedmen in the Early Roman Empire* (Oxford, 1928), pp. 143 *et seq.*

It is easier to ask these questions than to answer them. Reliable population statistics for the ancient world are extremely rare, and there are no trustworthy figures for numbers of slaves. It is however possible to make a rough estimate for Athens in the latter part of the fourth century B.C. We know that the adult male citizens numbered 21,000 and the adult male resident foreigners 10,000. This implies a total adult free population of both sexes of 60,000 or more, and a total free population including children of at least twice that figure. We also know the amount of corn grown in and imported into Attica, and the annual consumption which was considered normal for a man. We can thus calculate the corn consumed by the free population, and by deducting this amount from the total available find how much was left to feed slaves. The maximum possible number of slaves who could have been maintained is on this calculation about 20,000, or one slave to every three adult free persons.[1] A considerable number of the slaves must have been domestic servants. If, as Demosthenes implies, most of the citizens liable to payment of war tax, who numbered about 6,000, owned a servant girl, this would account for say 5,000.[2] Resident foreigners on this basis would have owned another 2,500, and there were, of course, many more prosperous families, both citizen and alien, which had larger domestic staffs. It would probably not be an overestimate to allocate 10,000, or half the slave population, to domestic service, leaving 10,000 to industry and agriculture, or one to three free adult males.

We hear little of agricultural slavery, and slaves were in fact probably little employed on the land. Most of Attica was cultivated by small peasant proprietors who had no need for slave labour, even if they could have afforded it. There was a small class of wealthier landlords who did not work their own land, but their estates often consisted of a number of scattered farms, some of which were let to free tenants. Only the home farm where the landlord resided was normally cultivated by slaves.[3]

Slaves were more commonly employed in industry. To begin at the bottom end of the social scale, a cripple, pleading for the continuation of his public assistance, declares: 'The craft which I practise cannot help me much. I already (he is getting on in years) find difficulty in doing the work myself, and I have not yet been able to acquire anyone to take it over.'[4] As Xenophon puts it, 'those who can, buy slaves so as to have fellow workers'.[5] That is, craftsmen who could afford it bought slaves and trained them as assistants, hoping ultimately to retire and live in their declining years on the proceeds of their work. Socrates cites five contemporaries, including a miller, a baker and a clothier, who lived in some affluence on the labour of their slaves.[6] Industrial slaves were also one of the recognized forms of investment for the wealthy; Socrates couples them with land and house property as possible sources of unearned income.[7] We occasionally meet with comparatively large industrial slave establishments. Demosthenes' father owned thirty-two cutlers and twenty bed-makers.[8] Pasion, besides his bank, had acquired before he died land to the value of 20 talents and a shield factory which brought in a talent a year.[1] The brothers Lysias and Polemarchus owned another shield factory comprising nearly 120 slaves.[2] This is by far the largest industrial establishment of which we know, and was probably exceptional. It had attained this size at the end of the Peloponnesian War, when there had been a prolonged and heavy demand for armaments, and its owners were foreigners, and therefore precluded from investing their money in land or house property. The average wealthy citizen in normal times, to judge by the half dozen estates which Isaeus describes in his speeches, put most of his money into land and houses, and rarely owned more than a dozen industrial slaves.[3]

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[1] *Econ. Hist. Rev.* VIII (1955), 142–3.
[2] See p. 185, n. 2 *supra*.
[3] *Past and Present* I (1952), 20–1; *Econ. Hist. Rev.* VIII (1955), 144, 150–1.
[4] Lysias, XXIV, 6.
[5] Xen. *Mem.* II, iii, 3.
[6] *Ibid.* II, vii, 3–6.
[7] *Ibid.* III, xi, 4.
[8] Dem. XXVII, 9.

Industrial slaves might be mere hands, fed and clothed by their owner. Demosthenes senior's slaves were apparently of this type. They seem to have worked in his house, for no factory building is included in the estate, and he bought the raw materials—Demosthenes includes in the valuation of the estate the stock of ivory and iron in hand:[4] he also marketed the finished products.[5] It was, however, also a common practice for owners of industrial slaves to let them work independently, collecting from them a fixed rent and allowing them to keep for themselves whatever they earned in addition. Thus Timarchus owned a little factory of nine or ten shoemakers, whose foreman paid him 3 obols a day and the other hands 2 obols each.[6] Such industrial slaves, who 'lived apart', as the Athenians expressed it, seem to have formed a substantial part of the population; they could on occasion be included in the call-up to man a fleet, together with resident foreigners.[7] Such a slave could be sold as a going concern, with his assets and liabilities—and the latter might exceed the former, as Epicrates found to his cost. Being enamoured of a boy he was bamboozled into buying his father Midas and his brother too and the perfumery which Midas ran, with its stock and outstanding debts. He paid 40 minae ($\frac{2}{3}$ talent) and discovered too late that there were 5 talents owing to sundry creditors.[8]

The great majority of Athenian industrial slaves worked in the silver mines of Laurium. The number fluctuated greatly. In the fifth century, before the occupation of Deceleia by the Spartans in 413, the mines were very intensively worked. Xenophon, writing two generations later, implies that at that period well over 10,000 slaves were employed in them,[9] and this is not impossible. In the fifth century the free population, both citizen and foreign, was much larger than in the fourth, and the total number of slaves was likewise larger; according to Thucydides over 20,000 slaves, mainly industrial, escaped during the Deceleian War.[10] From 413 till about 340 the mines were neglected; Xenophon implies that in his day the number of slaves employed in them was very small, since he thought they could easily absorb 6,000 or even 10,000 additional workers.[11] From the 330's the mines were again very actively exploited, but we have no reliable figures for the number of slaves employed.

Some mining entrepreneurs owned their slaves: we know of one who possessed thirty with a workshop for crushing and smelting the ore, and who raised his working capital to buy concessions from the state by loans on their security.[12]

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[1] *Idem*, xxxvi, 4–5, 11.

[2] Lysias, xii, 19.

[3] *Econ. Hist. Rev.* viii (1955), 151, n. 1.

[4] Dem. xxvii, 10, 30–3.

[5] *Ibid.* 19–22.

[6] Aeschines, *in Timarchum*, 97.

[7] Dem. iv, 36.

[8] Hypereides, v, 5 *et seq.*

[9] Xen. *Vect*[*igalia*], iv, 25.

[10] Thucydides, vii, 27, 5.

[11] Xenophon's evidence is confirmed by the inscriptions, see *Hesperia*, xix (1950), 189 *et seq.*

[12] Dem. xxxvii, 4 *et seq.*

Other entrepreneurs hired their slaves. This was according to Xenophon a common practice in the fifth century. Nicias is said to have owned 1,000 slaves whom he leased to a mining entrepreneur for 1 obol a day, the lessee feeding them and replacing casualties, and two other wealthy Athenians are said to have exploited gangs of 600 and 300 slaves in the same way.[1] Xenophon recommended that the state should go into the business in a large way. It was, according to him, highly profitable. He does not state what unskilled labourers cost, but he does say that if the state bought 1,200 initially, and used the resulting income to build up its stock, in five or six years it would possess 6,000.[2] This calculation, assuming that Xenophon was capable of working out the sum involved in compound interest, is based on a price of between 125 and 150 drachmae. There is some corroborative evidence that this is a plausible figure. Xenophon elsewhere speaks of slaves being worth very different sums, one 2 minae, another not half a mina, others five or ten (these must be skilled men).[3] Demosthenes in a forensic speech mentions a slave being sold for 2 minae,[4] and in another of two being valued at 2½ minae[5] (these were agricultural labourers; the price of 125 drachmae agrees closely with the figure for miners). Finally in 414–413 a batch of sixteen slaves, the confiscated property of an alien residing in the Peiraeus, fetched 2,552 drachmae when auctioned.[6] These included a boy who was sold for only 72 drachmae, but some, who fetched figures like 300 or 240, were doubtless skilled men, and most will have been of superior quality to miners. The average price is nevertheless only 160 drachmae each.

A rent of an obol a day (60 drachmae a year) for a slave costing 125 or 150 drachmae would give the owner a net return of at least 40 per cent per annum, or perhaps nearly 50 per cent, on his capital. This does not allow for periods of unemployment, for Xenophon insists that the silver mines have a virtually inexhaustible capacity for absorbing labour. Nor does it allow for amortization; though the lessee replaced casualties, the time would come when some of the men would grow too old to find a hirer. But if a slave had an average useful life of twenty years it would not at the low prices prevailing make much difference. To amortize a slave worth 150 drachmae would require 7½ drachmae a year, and if this sum is deducted from his rent of 60 drachmae a year, the return drops from 40 to 35 per cent.

The lessee seems also to have done well out of the transaction. The Eleusis accounts of 329 and 326 B.C. show that the state paid 1½ drachmae a day for unskilled labour and allowed 3 obols (½ drachma) a day for feeding public slaves, also unskilled labourers.[7] On these figures a mining entrepreneur would pay 9 obols a day for free labour, as against 4 obols (3 for food and 1 for hire) for slave labour; he would also have to make some allowance for replacement of clothes and for making good casualties, but the margin seems ample for this. In Xenophon's day the figures may have been rather lower, for prices rose rapidly in the second half of the fourth century. Demosthenes in 351 reckoned the cost of feeding a standing army, partly citizen and partly mercenary, at only 2 obols a day.[8] This figure is rather suspect, as he is trying to persuade the people that his project will not be too expensive, but he can hardly have proposed giving less than a slave ration to soldiers without making himself ridiculous. On the other hand, wages at the end of the fifth century were only 1 drachma a day.[1] On this basis the cost of free labour would be 6 obols as against 3 for servile.

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[1] Xen. *Vect.* iv, 14–15.

[2] *Ibid.* iv, 23.

[3] Xen. *Mem.* II, v, 2.

[4] Dem. XLI, 8.

[5] *Idem*, LIII, 1.

[6] M. N. Tod, *Greek Historical Inscriptions*² (Oxford, 1948), no. 79.

[7] *I[nscriptions] G[raecae]*, II–III², 1672, ll. 4–5, 42–3, 117–18, 141–2.

[8] Dem. IV, 28.

Skilled slave craftsmen do not seem to have brought in quite so high a return. Demosthenes declares that his father's cutlers were worth 5 or 6 minae each, or at the lowest reckoning 3 minae, and that his group of thirty-two or thirty-three brought in a net income of 30 minae a year. On the lowest valuation the return is 30 per cent, on the higher figures 15 or 20 per cent. He does not state the value of the twenty bed-makers, but as they were held as a pledge for a loan of 40 minae, they must have been worth well over 2 minae each. They brought in a net income of 12 minae a year, which is 30 per cent on the amount of the loan for which they were pledged, but less on their real value.[2] Timarchus' shoemakers who paid him 2 obols a day will have brought him in 120 drachmae a year each, or 40 per cent, if they cost only 3 minae, from 20 to 25 per cent if they cost 5 or 6. As one could normally get 12 per cent on loans with good security, such as mortgages, investment in skilled industrial slaves does not seem to have been very profitable, when allowance is made for amortization, which was a more serious matter when valuable skilled slaves were concerned, and for market risks. Demosthenes' guardians alleged, whether truly or not, that since his father's death the slaves had often been idle as their products were unsaleable.[3]

III

It is often stated that the competition of slave labour depressed the standard of living of free workers. It is impossible to disprove this statement, since we cannot know how much free workers would have earned if there had been no slaves, but the probabilities are against it. A slave craftsman 'living apart' was in no position to undercut his free neighbour, since he had not only, like him, to maintain himself and his family, if any, but also to pay his rent to his master. There is no evidence that owners of slave factories undercut free craftsmen. They seem to have preferred to sell their products at prevailing prices, and make as large a profit as they could: Demosthenes' guardians did not claim that they had sold off the products of his factory cheap, owing to the alleged glut, but that they did not sell them at all, or alternatively suspended the slaves' work. With hired labour the case was rather different. Where there was continuous employment, as in the mines, slave labour, whether owned by the entrepreneur or hired by him from a big slave owner like Nicias, was so much cheaper than free that it displaced it altogether. We hear of poor Athenians working their own claims with their own hands,[4] but never of hired free miners. But in casual employment, such as building or harvesting,[5] hired slaves and free men were employed indifferently. We do not know what the practice of private employers was, but the Athenian state, as the temple building accounts prove, paid the same rate (which was two or three times the cost of maintaining a slave) to free workers or hired slaves[1]. Slave owners who hired out their slaves evidently preferred to make a handsome profit by charging full current wage rates for their services rather than to undercut free workmen: they had after all to cover themselves against the periods of unemployment inevitable in casual work, when the slaves would be earning nothing but still had to be fed.

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[1] *IG*, I^2, 373–4, analysed by R. H. Randall in *American Journal of Archaeology*, LVII (1953), 199–210.

[2] Dem. XXVII, 9.

[3] Dem. XXVII, 19–21.

[4] Xen. *Vect.* iv, 22; Dem. XLII, 20.

[5] See Dem. LIII, 19–21 and LVII, 45 for hired slaves and free persons in harvesting. For building, see next note.

The reason that unskilled slave labour was so profitable to the owner was that slaves were fantastically cheap. The price of an unskilled man was, we have seen, from 125 to 150 drachmae. The cost of feeding him was, at Demosthenes' figure of 2 obols a day, 120 drachmae a year, or at the rate of 3 obols actually paid in 329 by the Athenian state to its slave labourers 180 drachmae a year: and a slave had to be clothed and shod as well as fed. A slave, that is, cost initially about a year's keep at the outside. Slave merchants could hardly have made a profit unless they acquired their wares for nothing or next to nothing and sold them very rapidly. Piracy and kidnapping were in fact common at this period, and there were large backward and unsettled areas nearby, where continual inter-tribal warfare produced a glut of prisoners. It was only in such conditions that slave labour was cheap enough to play the not inconsiderable role that it did in Athenian economy. Yet even here it was only when the slave was put to work as an unskilled labourer in the mines that he undercut the free man.

IV

Another time and place where slavery played an important role was Italy and Sicily during the last two centuries of the Republic. It was a period of constant wars, ruthlessly conducted, which threw many thousands of prisoners on to the market. It was also a period when piracy flourished unchecked until it became so intolerable a nuisance that in 67 B.C. Pompey was voted a vast fleet and army to clear the seas. He did so temporarily, but during the civil wars that followed piracy revived. Slaves should have been dirt cheap and very plentiful. Price figures are unfortunately almost entirely lacking for the western Mediterranean. After the battle of Cannae (216 B.C.) Hannibal offered to release his prisoners on the following scale of ransoms: 500 quadrigati for a Roman cavalryman, 300 for a Roman infantryman, 200 for an Italian ally, and 100 for a slave.[2] This scale is incidentally a warning against using ransoms as equivalent to slave prices; a free captive (or his relatives) could be expected to pay substantially more (according to his status) for his freedom than his commercial value. The figure for slaves is presumably roughly the current market price. In silver content 100 quadrigati were equivalent to about 150 Athenian drachmae, so that the price is low even by Athenian standards. In the eastern Mediterranean we have the Delphic manumission records for the last two centuries B.C. Here, out of about 700 prices, some 58 per cent range from 3 to 4 minae and another 14 per cent up to 5. Above 5 minae (mostly 6, 8 or 10) are 12 per cent, and below 3 minae (mostly 2–2½) are 14 per cent.[3] These figures represent select slaves of good quality, who alone would be likely to earn their manumission, the overwhelming majority adults. It is not improbable also that manumission prices were higher than the market rate; for masters were in a strong bargaining position and slaves might have been willing to pay more for their freedom than they would fetch on the open market. Taking these factors into account, the figures suggest a range of slave prices not dissimilar from that prevailing at Athens in the fourth century B.C. where skilled adults cost 3 to 5 minae.

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[1] *IG*, I², 373–4. See p. 190, n. 1 *supra*.

[2] Livy, XXII, 52 and 58.

[3] A. Calderini, *La manomissione e la condizione dei liberti in Grecia* (Milan, 1908), p. 214.

As at Athens in the fifth and fourth centuries B.C. servile labour was employed on a large scale in the mines: Polybius records that in his day 40,000 worked in the great silver mines near Carthagena in Spain.[1] According to Diodorus, who draws his information from a contemporary source, Posidonius, the slaves were ruthlessly driven, and only the hardiest lived long.[2] This implies that the supply was abundant and very cheap. There were however limits beyond which the employment of slave labour became unprofitable. Strabo tells us of a realgar mine in Paphlagonia where the mortality among the workers was so high, owing to the poisonous atmosphere, that the contractors, although they used the dregs of the slave market (slaves sold off because of their crimes), often abandoned their operations.[3]

The novelty of this period is the extension of slave labour in a big way to agriculture. The reasons for this are well known. The Roman aristocracy, both senatorial and equestrian, were acquiring vast money fortunes from the exploitation of the empire, and investing them in land. The peasant proprietors of Italy were hard hit by long term military service, and were compelled to sell their plots. Great estates thus grew up at the expense of small holdings, and as slaves were very cheap, the owners used them in preference to free labour. It is impossible to estimate how far the process went. The peasant proprietor was certainly never eliminated in Italy, but the reduction in their numbers was sufficiently serious to alarm the more thoughtful members of the aristocracy. The succession of agrarian laws, begun by Tiberius Gracchus, did something to check the process, but the great servile revolt under Spartacus shows that agricultural slaves must still have been very numerous in Italy in the 70's.

Cato's and Varro's treatises on agriculture imply that landlords used slave labour for all types of farming, for arable, vineyards, oliveyards and cattle ranches alike, but that they also hired labour for the peak periods, the harvest, the vintage and the olive-picking:[4] Varro also recommends the use of hired labour on unhealthy farms.[5] It appears then that the maintenance of a slave was a sufficiently serious item in the landlord's budget to make him keep a small permanent staff only, and that the cost of a slave was high enough to make frequent replacements uneconomic. Not all great landlords cultivated their estates with slave labour: in the Civil War Domitius manned six ships with his shepherds, who were slaves, and with his free tenants (*coloni*).[6] There seems to have been a considerable landless rural population, presumably dispossessed peasants, who continued to make a living as hired labourers, mainly in the harvest and vintage season. Tiberius Gracchus was able to command an overwhelming majority of voters when he proposed his land distribution bill in the winter, but, we are told, when he stood for re-election in the summer and tried to call on the rural voters, they did not respond, being busy with the harvest, and he was defeated.[7] It was from this class that the armies of the late Republic must have been largely recruited, particularly after Marius introduced voluntary enlistment and waived the minimum property qualification for service.[1]

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[1] Cited by Strabo, III, 147.

[2] Diodorus, V, 36.

[3] Strabo, XII, 562.

See W. E. Heitland, *Agricola* (Cambridge, 1921), pp. 164 *et seq.*, 178 *et seq.*

[5] Varro, *de re rustica*, I, 17.

[6] Caesar, *de bello civili*, I, 34 and 56. Varro (*op. cit.* I, 2, 17; II, 3, 7) also alludes casually to tenancy agreements.

[7] Appian, *Civil Wars*, I, 14, 2–3.

The wars of Augustus in Spain, Germany, the Alpine areas and Illyricum and Pannonia put large numbers of prisoners on the slave market, but with the cessation of great wars of conquest after his death this source of slaves dried up. From the beginning of the Principate the establishment of law and order within the empire cut off the other main source of supply, piracy and brigandage. Most slaves must have been bred during this period. This proposition is not susceptible of proof, but there are some indications in its favour. Of the slaves whose provenance is known the great majority come from within the empire, usually from the same area in which they lived, and few from beyond the frontiers.[2] The law took an increasing interest in the offspring of slaves. By the *senatusconsultum Claudianum* of A.D. 52, if a free woman cohabited with a slave, his owner was empowered to claim her (and her subsequent offspring) as his slave.[3] The legal position of infants who were exposed and brought up as slaves became an important issue: Trajan upheld the old principle that their free status was unprejudiced, but other emperors ruled that the parents could not reclaim them or could do so only if they repaid the cost of their upbringing.[4] In the *familia Caesaris*, the great body of imperial slaves and freedmen who filled the lower grades of the bureaucracy, hereditary service seems to have been the normal rule. Countless tombstones record freedmen of Augustus whose sons are also freedmen of Augustus, and must have been born in servitude. The emperor apparently did not free his slaves until they had produced slave sons to succeed them in the service.[5]

Home bred slaves must in the nature of things be rather expensive articles. The master has to allow his slave enough to keep his wife, who may be economically superfluous, and his children, who will be of little use until they reach their 'teens, and many of whom, under ancient conditions, will have died before reaching working age. Cato's ideal olive farm and vineyard were manned by twelve and sixteen male workers respectively, of whom only one, the bailiff, was allowed a wife.[6] The food and clothing bill would have been doubled or trebled, and no more work done, if he had allowed all his hands to keep a family to maintain the human stock of the farm.

In these circumstances one could *a priori* expect slaves to become scarce and dear. The recorded prices of slaves are in fact high. In Dacia in the middle of the second century a girl of six fetched 205 denarii, a woman (a Cretan) 420, and a man (a Greek) 600.[7] At the same period a boy of seven (from beyond the Euphrates) was sold at Seleucia of Syria for 200, a girl of twelve (a Phrygian) at Side of Pamphylia for 350 and an adult woman (from Marmarica) at Ravenna for 625 denarii.[8] The literary allusions are consistent with the documents. Petronius[9] speaks of 300 denarii as a bargain price for a sharp-witted Jewish boy, Horace[10] quotes 500 drachmae as a typical price for an ordinary slave of poor quality, and Martial[1] records a bid (refused) of 600 denarii for a prostitute. This is a consistent range of prices, which prevails throughout the empire with one exception, Egypt. Here we find one comparable price, a home born youth of seventeen sold at Alexandria in A.D. 154 for 2,800 local drachmae (=700 denarii).[2] The other prices (eight adults) range from 1,500 to 1,000 drachmae (=375–250 denarii).[3] The export of home born slaves from Egypt was prohibited by the Roman government[4] and the local demand was low—almost only for domestic service. Egypt was thus, in this as in many other things, economically segregated from the rest of the empire, and followed its own rules.

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[1] Cf. Appian, *op. cit.* I, 29, 4; Sallust, *Jugurtha*, 73, 6.

[2] M. Bang in *Mitteilungen des kaiserlichen deutschen archaeologischen Instituts, Römische Abteilung*, XXV (1910), 223–55.

[3] Tacitus, *Annals*, XII, 53.

[4] Pliny, *Ep[istulae]*, X, 65–6.

[5] *Journal of Roman Studies*, XXXIX (1949), 43.

[6] Cato, *de re rustica*, 10, 11, cf. Varro, *de re rustica*, I, 18.

[7] S. Riccobono, *F[ontes] I[uris] R[omani ante Justiniani]*² (Florence, 1943), III, 87, 89, 88.

[8] *Op. cit.* III, 132–4.

[9] *Satyricon*, 68.

[10] *Satires*, II, vii, 43. At this date denarius and drachma are equivalent, except in Egypt where four Alexandrian drachmae were equal to one denarius.

The range of prices from the rest of the empire indicate that 500 to 600 was a normal price for an unskilled adult. In fact we know that much larger sums were paid for skilled men: Horace[5] quotes 2,000 denarii for a handsome boy, educated in Greek, and Columella,[6] writing under Nero, recommends paying the same sum for a trained vinedresser. The figure of 500 to 600 denarii is then comparable with the 125 to 150 drachmae paid for an unskilled slave at Athens. In silver content 600 denarii are equivalent to 450 drachmae, so that the Roman price reckoned in silver is about three times the Athenian. But the purchasing power of the denarius was much higher than that of the drachma. Wheat at Athens was cheap at 5 drachmae to the medimnus,[7] in the Roman empire at 2 sesterces to the modius:[8] that is 5 drachmae would buy the same quantity as 3 denarii. The minimum ration allowance allowed by Demosthenes for his proposed standing away was 2 obols a day or 120 drachmae a year. A Roman soldier had 60 denarii a year deducted from his pay for rations.[9] On this basis a slave in the second century cost eight to ten times his annual keep as against a year or a year and a quarter's keep in fourth-century Athens.

V

Columella, writing a handbook for the gentleman farmer under Nero, still recommends the use of slaves in the home farm, but advises letting outlying properties to free tenants, especially if they are arable.[10] For vineyards he appears to assume that slave labour will be used, expensive though it is.[11] Pliny, a generation later, often speaks of his troubles with his tenants: they demand remissions of rent, but nevertheless fall into arrears, he thinks of letting his farms on a share of the crop instead of a fixed money rent, he has difficulty in finding suitable tenants.[12] He never speaks of slaves, and says in fact that he nowhere used chained slaves.[13] As, however, he sold the crops of his vineyards to contractors[14] he must have cultivated these by direct labour, which probably means slaves. The third-century lawyers reveal a similar mixture:

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[1] VI, 66, 9.

[2] *Journal of Egyptian Archaeology*, XVII (1931), 4.

[3] *Aegyptische Urkunden aus den staatlichen Museum zu Berlin, Griechische Urkunden* (=*BGU*), III, 805; IV, 1114, 1128. *Oxyrhynchus Papyri* (=*P. Oxy.*), 95. *Aegyptus*, XIII (1933), 230. *Griechische Papyrusurkunden der Hamburger Staats- und Universitätsbibliothek*, 63. *Sammelbuch Griechische Urkunden aus Aegypten*, 6016. *P. Col. inv.* 512 (unpublished, cited by W. L. Westermann. *The Slave Systems of Greek and Roman Antiquity* (Philadelphia, 1955), p. 101, n. 116).

[4] *BGU*, V, 65–7, 69.

[5] *Epodes*, II, ii, 5.

[6] *Ibid.* III, 3, 6.

[7] Dem. XXXIV, 39.

[8] *Econ. Hist. Rev.* V (1953), 295.

[9] H. M. D. Parker, *The Roman Legions* (Oxford, 1928), p. 217.

[10] Columella, I, 7, 8.

[11] *Idem*, III, 3, 6.

[12] Pliny, *Ep.* III, 19; VII, 30; IX, 37; X, 8; cf. IX, 36.

[13] *Ibid.* VII, 19.

[14] *Ibid.* VIII, 2; cf. IX, 20.

the bequest of an estate might include agricultural slaves,[1] and also the arrears of free tenants.[2] They also show that the slaves commonly had families.[3] One gains the general impression that slaves were used on the home farm attached to a residential villa and for more highly skilled jobs, like vinedressing, but that ordinary arable farming was left to free tenants: and, moreover, that agricultural slaves were normally bred.

This evidence applies mainly to Italy. For the provinces our evidence is very scanty save for two areas, Egypt and Africa. In Egypt, where agricultural slavery had never existed, the land continued to be cultivated by free peasants as tenants either of the state, the temples, or private landlords. In Africa we know from literary and legal sources of private landlords who owned agricultural slaves,[4] but a series of inscriptions reveal that on the great imperial estates the head tenants (*conductores*) sublet most of the land in small lots to free working tenants (*coloni*). They must have kept some land in hand, no doubt cultivating it with slaves, for the *coloni*, in addition to their rent—a share, normally a third, of the crop—owed labour services—six to twelve days a year at the three peak periods of ploughing, hoeing and harvest.[5]

There is a change in mining also. Some mines and quarries were worked by convict labour: it is significant that *damnatio ad metallum* under the Principate becomes a common alternative to the death penalty, especially for the lower classes.[6] But free labour was also employed. We possess a number of second-century indentures in which free men leased their labour for six months or a year in the Dacian gold mines: in the only specimen where all the relevant figures are preserved the rate of pay is 70 denarii plus food for six months.[7] This is equivalent to 200 denarii a year, or two-thirds of what a private in the army received at that period. In the *Lex Metalli Vipascensis* of Hadrianic date the mines are no longer leased as a whole to contractors (*conductores*) who employ large gangs of slaves, but individual shafts are let or sold by the resident imperial agent (*procurator*) to tenants (*coloni*) who appear to be working miners, often grouped in partnerships, sometimes employing slave or hired labour.[8]

On the other hand slaves seem to have been extensively used in commerce and industry, in Italy at any rate. This is implied by the elaborate rules which were evolved to define the legal responsibility of owners for their slaves' commercial transactions. The law held the owner, unless he expressly and publicly disclaimed responsibility, liable in full for the debts and contracts of his *institor*, the slave whom he put in charge of a shop or business.[9] If the owner had disclaimed responsibility, creditors had two alternative remedies, the *actio peculii* and the *actio tributoria*.[10] Under the former they could recover from the slave's *peculium*, the sum which was by his master's consent under his control; but the master in this case had a prior claim to recover debts owing to himself by his slave. Under the latter, all creditors, including the owner, could recover in proportion to their claims from the *merces peculiaris*, the stock of the business which the slave carried on, which might be less than the *peculium*, as it did not include the slave's personal assets.

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[1] *Dig.* xxxiii, vii, 3, § 1; 8; 12, §§ 2–9, 35, 37, 46; 18, §§ 6–7, 11, 13; 19; 20, §§ 3, 5–6, 9, etc.

[2] *Ibid.* xxxii, 78, § 3; 91, pr. §1; 97; 101, § 1; xxxiii, ii, 32, § 7; vii, 20, pr. §§ 1, 3; 27, § 1.

[3] *Ibid.* xxxiii, vii, 12, §§ 7, 33. Trimalchio is represented as breeding slaves on a vast scale on his estates (Petronius, *Satyricon*, 53).

[4] Apuleius, *Apologia*, 93 (400 slaves, most probably agricultural, being associated with lands, crops and stocks), cf. 17 and 47 for allusions to agricultural slaves; Herodian, vii, iv, 3; *Dig.* xxxiii, vii, 27, § 1.

[5] *FIR*, i, 100–3.

[6] This penalty is first recorded under Trajan (Pliny, *Ep.* x, 58) and Hadrian (Pomponius in *Dig.* xl, iv, 46).

[7] *FIR*, iii, 150.

[8] *FIR*, i, 104.

[9] *Dig.* xiv, iii.

[10] *Dig.* xiv, iv.

It cannot be necessarily deduced from these legal rules that the conditions for which they provided were widespread, but their evidence is supported, for Italy and to a lesser extent for southern Gaul and Spain, by that of the inscriptions, which show a very large number of freedmen engaged in industry and trade. Some of these freedmen were former domestic slaves, who learned a craft or opened a shop after manumission in order to support themselves,[1] but it seems likely that the majority of them started as slave *institores*, and purchased their *merces peculiaris* together with their freedom. It must, however, be stressed that the evidence which we possess is geographically limited. In Egypt, where our knowledge, thanks to the papyri, is fullest, industrial slavery is almost unknown. In general we find only free independent craftsmen, apart from one allusion to free hired labour in the weaving industry.[2] Elsewhere in the East evidence is scanty, but we know that at Tarsus, a great centre of the linen industry, the weavers were free men, too poor indeed to afford the 500 drachmae fee required for inscription on the local citizen register, but according to Dio Chrysostom[3] otherwise worthy of the citizenship.

It would seem that under the Principate the price of slaves was too high to allow their employment in unskilled labour, but that it was now relatively more profitable to use them in skilled jobs, in agriculture, for instance, as vinedressers, and as craftsmen in industry and agents in trade. This development would have been helped by the growing practice of breeding slaves; for the son of a skilled slave could be early apprenticed to his trade. It may reasonably be doubted whether the employment of slave labour, even in skilled work, was very profitable at this period, and its prevalence in Italy and the neighbouring provinces may be due to special causes. In these areas resided the great majority of Roman senators and *equites*, who filled the lucrative administrative and military posts throughout the empire. There was thus a continuous and considerable inflow of money, in the form of salaries and of less legal perquisites, into Italy, southern Gaul and Spain, and this money sought investment. It went mostly into land, but the amount of land was limited, and prices rose to exorbitant heights. Almost the only alternative investment was slaves, and even if they were not a very profitable investment they brought in something.

From the third century onwards public security deteriorated. In many parts of the empire brigandage became rife; the Isaurians, for instance, continually raided eastern Asia Minor and northern Syria. Constant border warfare brought in its crop of barbarian prisoners, and barbarian invaders carried off thousands of Roman citizens, whom they had sold back to the empire as slaves. Such persons could reclaim their freedom if they could repay their purchasers the price that they had paid for them, but for many this must have been impossible and they remained slaves. Nevertheless the demand for slaves still exceeded the supply, especially at a great centre of consumption like Rome. Symmachus, an immensely wealthy senator, went to the trouble of asking the praetorian prefect of Italy, then resident on the Danube, to buy him twenty slaves for use as stable boys, 'because on the frontier it is easy to find slaves and the price is usually tolerable'.[4] Slaves were normally bred, and there seems to have been a heavy demand for foundlings and for newborn babies (*sanguino-*

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[1] *Dig.* XXXVIII, i, 16.

[2] *P. Oxy.* 1414.

[3] XXXIV, 21–3.

[4] Symmachus, *Epistulae*, II, 78.

lenti) sold by their parents. This practice was by now legal,[1] and the sale of older children though illegal was widespread.[2]

In these circumstances slave prices might have been expected to fall somewhat from the high level prevailing in the second century A.D., and in fact they seem to have done so. In a schedule of prices, which Justinian laid down for the compensation payable to the joint owners of a slave whom one of the partners had manumitted, a child (up to ten) is valued at 10 solidi, an unskilled adult (male or female over ten) at 20 solidi, and a skilled man or woman at 30: substantially higher prices are assigned to eunuchs and to specialists such as notaries and doctors.[3] This schedule seems from the meagre evidence available to have been realistic. A Gallic boy of fourteen was sold at Ascalon in 359 for 18 solidi.[4] Palladius[5] tells a story of a man who sold himself for 20 solidi, and Leontius[6] of another who fetched as much as 30 in a similar transaction. As against this high price S. Remigius records in his will that he bought a man for only 14 solidi 'to prevent his being killed'.[7] A Visigothic Law[8] provides an interesting commentary on the price of 10 solidi at which Justinian assessed children under ten, and on the cost of breeding slaves. Parents were entitled to recover children whom they had exposed or sold as infants on payment of one solidus for each year of the child's age up to a maximum of ten. This, it is explained, was to cover his maintenance while he was not yet productive; after ten he was deemed to earn his keep by his work. Slave breeders had to reckon with heavy mortality, both during the first ten years and later, so that the commercial price of 20 solidi for any slave over ten was not so excessive as it might seem. But the wide margin between the cost of breeding slaves and their market price suggests that they had a rarity value. The standard price for an unskilled adult, 20 solidi, was equivalent in gold value to a little over 300 denarii, and four or five times the contemporary ration allowance (*annona*) of a soldier.[9] Slave prices had thus dropped to about half in real value of what they were in the peaceful days of the second century A.D., but were still four or five times as high as in Athens of the fourth century B.C.

In the mines slavery seems by the fourth century to have been extinct; some convict labour was still employed, notably Christian recusants in the Great Persecution,[10] but *metallarii* in the codes are assumed to be free men. In agriculture the codes show that slaves still existed side by side with free tenants. In industry the state weaving mills and dyeworks were manned by public slaves:[11] so also were the mints[12] and the imperial transport service, the *cursus publicus*.[13] In private industry on the other hand slaves seem to have been rare. We hear of one man of means, Thalassius of Antioch, who owned a slave-manned knife factory, precisely like Demosthenes, as Libanius pointed out,[14] and of humble persons in the province of Moesia, who though landless might qualify for the decurionate by their wealth in slaves.[1] In general, however, industry was carried on by free craftsmen of humble status grouped in guilds.[2]

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[1] *Fragmenta Vaticana*, 34, *Cod. Theod.* V, x, 1.

[2] *Cod. Theod.* III, iii, 1; XI, xxvii, 2; Val[entinian], *Nov*[*ella*], xxxiii; cf. Rufinus. *Historia Monachorum*, 16; Zosimus, II, 38; Lib. *Or.* XLVI, 23; Cassiodorus, *Variae*, VIII, 33.

[3] *Cod*[*ex*] *Just*[*inianus*], VII, vii, 1.

[4] *FIR*, III, 135.

[5] *Lausiac History*, 83.

[6] *Life of John the Almoner*, 22. The compensation payable for the murder of an unskilled slave (a ploughman or swineherd) is also 30 solidi in the *Lex Romana Burgundiorum*, ii, 6 (*M*[*onumenta*] *G*[*ermaniae*] *H*[*istorica*], *Legum Sectio* I, II, 127), but here a penal element may enter into the price.

[7] *MGH*, *Scriptores rerum Merovingicarum* III, 339.

[8] *Lex Visigothorum*, IV, iv, 3 (*MGH*, *Legum Sectio* I, I, 194).

[9] Val. *Nov.* xiii, 3; *Cod. Just.* I, xxvii, i, §§ 22–38.

[10] Eusebius, *Ecclesiastical History*, VIII, 12, etc.

[11] *Cod. Theod.* X, xx, 2, 3, 5, 7, 9.

[12] *Ibid.* X, xx, 10.

[13] *Ibid.* VIII, v, 58.

[14] Lib. *Or.* XLII, 21.

What is abundantly clear from the sources is that slavery on the land and in the state industries was hereditary. The laws are much concerned with regulating the tangles which resulted from intermarriage between such slaves and free persons.[3] In the Diocletianic persecution some Christians were as a penalty enslaved and drafted into the state weaving mills,[4] but apart from this there is no hint that the government ever thought of adding to its hereditary stock. Landlords might sometimes restock a derelict farm with slaves,[5] but this was exceptional; indeed the prefect of the city once persuaded the Roman senators to contribute to famine relief by pointing out how disastrous it would be if they were forced to buy slaves to replace their starving peasants.[6] It would seem that on some estates a hereditary servile population had been established: we hear of agricultural slavery mainly in Italy,[7] and some western provinces,[8] where it was no doubt a survival from the conditions of the late Republic and early Principate. The state similarly was able to maintain its slave establishments by breeding. In private industry there was not the same continuity of ownership and the units were too small for hereditary groups to be established.

VI

During this period the social and legal status of slaves and free persons both on the land and in the state industries tended to be assimilated. On the one hand owing to the acute shortage of manpower the government tended to 'freeze' workers in essential occupations, together with their children.[9] On the other hand slaves in the hereditary groups were allowed to hold property, and bequeath it to their children. In the state industries it is difficult to find other than technical differences between the *fabricenses* or arms manufacturers, who were legally soldiers, and the workers in the mints, weaving mills and dyeworks, who were legally slaves. Both were bound with their children to their trades; *fabricenses* were branded to facilitate their detection if they escaped. Both could hold and bequeath property.[10] In agriculture the free tenant was tied with his children to his plot of land from the reign of Diocletian, and later legislation forbade him to alienate his private property without his landlord's consent,[11] and deprived him of his right to bring civil actions against his landlord.[12] Valentinian I prohibited the sale of agricultural slaves apart from the land which they cultivated.[1] They possessed their *peculia* or private property, which they could not alienate but which normally passed to their children.[2] Slave and free peasants intermarried freely, and the only practical distinction between them was that the status of their children followed different rules in mixed marriages.

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[1] *Cod. Theod.* xii, i, 96.

[2] See my article, 'The economic life of the towns of the Roman Empire', *Recueils de la Société Jean Bodin*, vii (1955), 177 *et seq.*

[3] For the state industries see *Cod. Theod.* x, xx, 3, 5, 10, 15, 17 for mixed marriages and also viii, v, 58 and x, xx, 16 for wives and children. For agricultural slaves see Val. *Nov.* xxxi, 6; *Cod. Just.* xi, xlviii, 21 for mixed marriages; cf. *Cod. Theod.* ii, xxv, 1; *Cod. Just.* xi, xlviii, 7, lxviii, 3 and 4 for families.

[4] Eusebius *Vita Constantini*, ii, 34.

[5] *Cod. Theod.* v, xiii, 4.

[6] Ambrose, *de officiis*, iii, 47.

[7] *Vita Melaniae Junioris*, 10 and 18 (*Analecta Bollandiana*, viii (1889), 27, 33, xxii (1903), 13); letter of Pope Pelagius in P. Jaffé, *Regesta Pontificum Romanorum*^{2} (Leipzig, 1885), i, 127, no. 956 (656).

[8] E.g. Orosius, vii, 40 for Spain, and *Lex Gundobada*, 54 (*MGH, Legum Sectio* I, ii, 88) for Gaul.

[9] See my *Ancient Economic History* (1948), pp. 12 *et seq.*

[10] On the *fabricenses* see *Cod. Theod.* x, xxii, on the other groups, *ibid.* x, xx.

[11] *Cod. Theod.* v, xix, 1.

[12] *Cod. Just.* xi, l, 2.

If one may draw any general conclusions from this rather inadequate evidence, it would appear that gang slavery in its crudest form, the use of bought slaves for unskilled labour, flourished only in rather exceptional circumstances, when, owing to the prevalence of wars and piracy, prices stood at a rock bottom level, and then only in work in which they could be continuously employed. In these circumstances slaves tended to replace free labour. At Athens there is no evidence that this caused unemployment among the free population, or that it reduced wages in occupations, such as building, where slave and free unskilled labour were employed concurrently. In Italy, under the late Republic, on the other hand, peasants were thrown out of work by the increasing use of agricultural slaves. In the settled conditions of the Principate gang slavery tended to die out and did not revive in the later empire despite growing insecurity and a consequent fall in the price of slaves. Where agricultural slavery survived it was a heritage of the past, and the social and economic position of slaves on the land had become indistinguishable from that of free persons.

In skilled industrial employment, where the capital value of a slave depended less on his initial price and more on the cost of training him, the use of slaves did not vary so much according to the state of the slave market. In this sphere the profits of the master were not so great, both because of the relatively high capital value of trained slaves, and because it was generally found advisable to give such slaves economic incentives which brought their condition close to that of the free craftsman. As a result slaves do not seem to have competed with free persons by cutting prices. In skilled employments also the use of servile labour seems to become rare in the later empire, except in the large state factories, where the slaves were a hereditary class scarcely distinguishable from free persons.

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[1] *Ibid.* XI, xlviii, 7. This rule was revoked in Italy by Theoderic (*Edictum*, 142).

[2] Letters of Pope Gelasius (fr. 28 in A. Thiel, *Epistolae Romanorum Pontificum genuinae* (Brunsberg, 1867) and of Pope Pelagius (Migne, *Patrologia Latina*, LXIX, 418)) mention apparently substantial *peculia* of agricultural slaves of the Roman Church. One had the temerity to make a will; this was disregarded by the Pope, who, however, allowed his property to pass to his sons.

EARLY-RIPENING RICE IN CHINESE HISTORY

By PING-TI HO

FOOD supply is a basic problem in economic history, for until comparatively recent times 'the normal condition of the world has been one of scarcity'.[1] Although food supply has, by and large, ceased to be a vital problem for certain parts of the western world since the Industrial Revolution and subsequent improvements in mechanical transportation, it still remains so in certain Asian countries, particularly China, the largest nation on earth. It is hard to imagine, in the light of our knowledge of food supply in twentieth-century China, that for the greater part of the past millennium the food situation was considerably better in China than in Europe. It was precisely because of her more abundant food supply that China's population began to increase relatively rapidly since the opening of the eleventh century, while the rapid growth of population of western Europe had to await till the late eighteenth century. But for one century of unusually oppressive government and a long series of natural calamities during the Mongol Yüan dynasty (1260–1368) China's population would have been continually increasing. With the exception of the zigzags in the population movements during the seventeenth century, which were again accounted for by mis-government, peasant rebellions and gradual recovery, the growth of population from the founding of the Ming dynasty in 1368 to the outbreak of the Taiping Rebellion in 1851 was almost uninterrupted. By 1850 China's population definitely exceeded 430,000,000 and her economy had begun to assume a peculiar pattern familiar to all modern students. While the factors which contributed to the prolonged population growth were partly economic and partly institutional, one basic reason was that an 'agricultural revolution' took place in China much earlier than in Europe, where important changes in agriculture did not occur until the eighteenth century.[2]

The core of the 'agricultural revolution' in early-modern China was its cropping system in which the early-ripening rice played a central role. For although there were some improvements in agricultural implements and water-control during early-modern times, they cannot be called major technological progress. In retrospect, it was the early-ripening rice that ensured the success of a double, and sometimes multiple, cropping system for which the agriculture of China's rice area is famous. The development of an ever-increasing number of early-ripening varieties, consequential upon the introduction at the opening of the eleventh century of a relatively drought-resistant rice from the state of Champa in central Indo-China, enabled Chinese farmers to extend the agricultural frontier from the lowlands, deltas, basins, and river valleys to the comparatively well-watered hills. Since the extent of lowlands suitable for the cultivation of indigenous late- and medium-ripening rice is rather limited, the drought-resistant early-ripening varieties in the course of time brought about a major revolution in land utilization and more than doubled the area of rice culture in China. Directly by way of doubling China's rice area and indirectly by promoting a better cropping system, the long-range effect of early-ripening rice on China's food supply and population growth was prodigious. It is the aim of this essay to explain certain technical aspects in China's rice nomenclature which are essential to our study, to trace the main stages in the dissemination of early-ripening rice, to discuss its various economic effects, and to appraise the role which early-ripening rice played in the economic history of early-modern China.

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[1] R. H. Tawney, 'The Abolition of Economic Controls, 1918–1921', *Economic History Review*, XIII (1943). The following abbreviations are used throughout in the footnotes: *CC*, *chou-chih* (county history); *FC*, *fu-chih* (prefectural history); *HC*, *hsien-chih* (county history); *TC*, *t'ung-chih* (provincial history); *CP*, Commercial Press; SPPY, Ssu-pu pei-yao; TSCC, Ts'ung-shu chi-ch'eng. Readers who wish to consult references in their Chinese form are asked to get in touch with the author.

[2] For a more detailed discussion on the nature of various categories of China's historical population data, the probable total population for various sub-periods, and factors relating to population changes, cf. my *Population of China, 1368–1850: An Essay in Institutional and Economic History*, which will be published by the Harvard University Press in 1957.

How about [illegible]

[illegible]

In a country as large and varied as China there must have been a fairly large number of varieties of rice since the beginnings of her rice culture. The lack of systematic ancient treatises on rice makes it impossible for modern students to know more than a handful of ancient rice varieties. But enough is known to cast doubt on the generalization of the late Professor Kato Shigeshi that 'Chinese rice was originally of the early-ripening varieties'.[1] Since the question whether Chinese rice was, by and large, originally of the early-ripening or late-ripening varieties is so important to our study, a short discussion of ancient Chinese rice varieties is necessary.

The low plain area of Honan and the central Shensi basin were the cradle of Chinese civilization. In ancient north China rice was a less important crop than millet, perhaps the only common cereal plant indigenous to China,[2] and wheat. In *Shih-ching*, or the *Book of Odes*, rice is referred to altogether six times, as compared to thirty-seven occurrences of non-glutinous and glutinous millet.[3] Only in the famous peasant song 'Ch'i-yüeh' is it clearly mentioned that 'in the tenth month we reap the rice'.[4] Although the song of 'Ch'i-yüeh' referred to two calendrical systems, namely, the Hsia calendar, or the common lunar calendar, and the calendar of the royal house of Chou, which fixed the beginning of the year two months earlier than the former, there can be little doubt that in agricultural practices the Hsia calendar was invariably adopted by the people, while in political and religious affairs the Chou calendar was used by the court.[5] It was because of the superiority of the Hsia calendar for agricultural purposes that it was universally adopted by Chinese farmers and later rulers throughout the centuries. The tenth month referred to in 'Ch'i-yüeh' is therefore the tenth lunar month, or the first month of winter. In the first twelve chapters on seasonal and monthly climatic changes in the eclectic work *Lü-shih ch'un-ch'iu*, compiled for the prime minister of the Ch'in state Lü Pu-wei

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[1] Kato Shigeshi, 'Rice Production in China with Particular Reference to Seed Varieties', and 'The Development of the Cultivation of Champa Rice in China', two articles which were originally published in Japanese historical journals have been posthumously collected and printed in his *Studies in Chinese Economic History* (The Toyo Bunko, 1953), II, 638–75. They are all in Japanese, but with English abstracts at the end of vol. II.

[2] N. I. Vavilov, *Selected Writings of N. I. Vavilov*, transl. by K. S. Chester, *Chronica Botanica*, XIII, nos. 1–6, 1949–50.

[3] Ch'i Ssu-ho, 'Agricultural Plants in the *Book of Odes*', *Yenching Journal of Chinese Studies*, no. 36, June 1949 (in Chinese).

[4] Bernhard Karlgren (tr.), *The Book of Odes* (Stockholm, 1950), pp. 96–100.

[5] For authoritative discussions of ancient calendrical systems of China, cf. Cheng Hsüan (A.D. 127–200), *Li-chi Cheng-chu* (SPPY ed.), ch. 5, p. 1a; K'ung Ying-ta (574–648), *Li-chi cheng-i* (SPPY ed.), ch. 14, p. 3a; and Lu Pu-wei (d. 235 B.C.), *Lü-shih ch'un-ch'iu* (SPPY ed.), ch. 1, p. 1a.

Cynical

(d. 235 B.C.), which were entirely adopted by the important Confucian compilation of the Han times, *Li-chi*, or the *Book of Rites*, it is stated: 'In this [ninth] month the Son of Heaven eats dog's flesh and rice, first presenting some in the apartment at the back of the ancestral temple'.[1] There is therefore a difference of one month between the ripening time referred to in 'Ch'i-yüeh' and that in these two compilations. The difference is, however, more apparent than real in the light of some erudite Han classical commentators. Ts'ai Jung (A.D. 132–92), for instance, gave particular thought to this problem and explained: 'Rice was usually reaped in the tenth month, but the Son of Heaven tasted the early-ripening rice first. The rice which matured in the ninth month was called *pan-hsia* (half-summer) rice.'[2] It is clear that rice in ancient times generally ripened in the tenth month and the so-called early-ripening varieties matured but a month earlier. Whether ripening in the tenth or in the ninth month, ancient Chinese rice was mostly of the late-ripening kind, by early-modern standards at least. There remains one more problem to be settled. Professor Kato shared the opinion of traditional scholars that the song of 'Ch'i-yüeh' is a description of the agricultural life of people of the *Pin*, or central Shensi, area; as such the ripening time of rice therein referred might not be representative of the rest of ancient north China. In his opinion Shensi is too far inland and likely to have a later growing season than eastern provinces. This is doubtful in the light of our geographic knowledge. What is more, the song of 'Ch'i-yüeh', instead of being a description of peasant life in ancient Shensi, has been conclusively shown by a capable modern Chinese historian to be a portrayal of the life on a manor in the present south-western Shantung area some time during the fifth or fourth century B.C.[3]

What has made Professor Kato believe that rice in ancient China was mostly of early-ripening varieties is that the important agricultural treatise *Ch'i-min yao-shu*, a work compiled during the first half of the sixth century A.D., citing an earlier work *Kuang-chih*, which is no longer extant, gives a limited number of early-ripening varieties of rice which matured in south China, particularly in Szechwan, in the seventh and sixth lunar months.[4] We may add to Kato's evidence by pointing out that a reddish *t'ao-hua* (peach-blossom) rice of hilly southern Anhwei, which had been famous since at least the sixth century A.D., was identified by Lo Yüan, a famous natural historian of the twelfth century, to have definitely been an early-ripening variety.[5] When military colonization was carried out in 993 in the area south-west of Tientsin an early-ripening rice was introduced from the lower Yangtze, in order to beat the early frost. It matured in the eighth month, or a month later than the usual ripening time in its original habitat and made the colonization project a success.[6] All this clearly shows that before the introduction of Champa rice into China at the opening of the eleventh century there had been indigenous early-ripening varieties in China.

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[1] James Legge (tr.), *The Li Ki*, in *Sacred Books of the East* (Oxford, 1885), XXVII, 295.

[2] Ts'ai's commentary on the 'Monthly Commands' cited in the famous botanical encyclopedia, *Kuang-ch'ün-fang-p'u*, completed in 1708. It must be pointed out that this passage is missing in common modern editions of Ts'ai's works. In the Sung encyclopedia *T'ai-p'ing yü-lan* (1812 ed.), ch. 839, p. 9b, it simply says: 'Rice was usually reaped in the tenth month. The rice which matured in the ninth month was called the "half-summer" rice.'

[3] Hsü Chung-shu, 'On the Origin of Pin-feng of *Shih-ching*', *Bulletin of the Institute of History and Philology, Academia Sinica*, VI, Pt. 4 (1936).

[4] *Ch'i-min yao-shu* (SPPY ed.), ch. 2, p. 9b. As to the date of the completion of this work, cf. Wan Kuo-ting, 'Ch'i-min yao-shu: China's Earliest Comprehensive Agricultural Treatise Extant', *Li-shih yen-chiu* (Historical Research), 1956, no. 1 (in Chinese).

[5] Lo Yüan, *Hsin-an chih* (1175 ed. 1888 reprint), ch. 2, pp. 1b–2a and p. 28a.

[6] Li T'ao, *Hsü-tzu-chih-t'ung chien-ch'ang-pien* (1881 ed.), ch. 34, pp. 2a–3a.

Yet the record of this handful of varieties of early-ripening rice prior to the opening of the eleventh century must not be taken to mean that early-ripening varieties had played a predominant role in the rice culture of ancient and medieval China. On the contrary, the very fact that these few early-ripening and some very special varieties were recorded, as contrasted to the entire lack of mention of medium- and late-ripening varieties, indicates that they were exceptional rather than common. For, in the first place, general agricultural treatises, unlike later local histories, did not give detailed listing of local or regional products unless they were of such an unusual kind as to merit attention. In the second place, it is common scientific knowledge that the number of varieties of rice 'probably exceeds the combined numbers of varieties found in all other cereals'.[1] Any generalization which is based on a listing of a few special varieties is bound to be misleading. Thirdly, the weighty evidence against Kato's generalization comes from *Ch'i-min yao-shu* itself. With regard to the length of growing season of the rice plant, *Ch'i-min yao-shu*, without mentioning special cases, cites earlier works and states as a general principle: 'Rice requires eighty days to bear seeds and another seventy days to ripen.'[2] Although we can be reasonably sure that rice in ancient China, as it still is in most parts of China today, was planted between the middle of the third lunar month and the end of the upper two-thirds of the fourth,[3] we have no way of ascertaining whether the period of 150 days given in *Ch'i-min yao-shu* dates from the time of seeding or from the time when the young shoots are transplanted from the nursery bed to the paddies. We know only that the general practice in early-modern and modern times has been to reckon the number of days required for the growth of the rice plant from the time of transplantation.[4] If the later practice was a continuation of the old, then the majority of rice varieties probably ripened in the ninth month. Even without adding the usual four or five pre-transplantation weeks to the period of 150 days, the ripening time would be in the eighth month, a time which is usually regarded late by early-modern standards. It is significant to note that T'ao Ch'ien (A.D. 365?–427), the famous pastoral poet and a native of Kiangsi, regarded as early-ripening the variety of rice which was harvested in the middle of the ninth month.[5]

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[1] Cecil Yampolsky, 'Rice II. Rice Grain and Its Products', *Wallerstein Laboratories Communications*, VII, no. 2 (1944). The first part of this paper 'Rice I. The Plant and its Cultivation', no. 18, 1943, is also useful.

[2] *Ch'i-min yao-shu*, ch. 2, p. 9b. By early-modern and modern standards the common rice discussed in *Ch'i-min yao-shu* was all 'late-ripening and large-grain rice'. Cf. Feng Ying-ching, ed. *Huang-Ming ching-shih shih-yung pien* (late-Ming ed.), ch. 15, pp. 45a–45b. The predominance of late-ripening rice in ancient and early medieval China is most clearly pointed out in Li Yen-chang, *Chiang-nan ts'ui-keng k'o-tao pien* (preface dated 1834; 1888 ed.), pp. 34a–45a.

[3] *Fan Sheng-chih shu*, the famous agricultural work of the first century B.C., says that rice should be planted 110 days after winter solstice. Fragments of this work have been collected in *Yü-han-shan-fang chi-i-shu*, vol. 69. Some two centuries later Ts'ui Shih, *Ssu-min yüeh-ling*, collected in *Ch'üan-Hou-Han wen*, vol. 47, also says that rice seeds should be sown in the third month. *Ch'i-min yao-shu* further gives a proper range of time within which rice should be planted. The third month is 'early' time; the upper one-third of the fourth 'middle' time; and the middle one-third of the fourth 'late' time. The planting time had changed little down to the sixteenth century. Cf. Feng Ying-ching, *Yüeh-ling kuang-chi* (1602 ed.), ch. 7, p. 24b.

[4] This standard way of reckoning the length of time required for the growth of the rice plant is clearly stated in the authoritative treatise on technology, Sung Ying-hsing, *T'ien-kung k'ai-wu* (1929 photo-reproduction of the 1637 ed.), Book 1, p. 2a.

[5] T'ao Ch'ien, *Ching-chieh hsien-sheng chi* (SPPY ed.), ch. 3, p. 14a.

A writer of the late ninth century testified to the fact that even in so southerly a region as Yunnan, where in modern times the early-ripening rice is of greater importance than the late-ripening, there was in general only one crop of rice a year, usually harvested in the eighth month.[1]

By far the most weighty evidence indicating the relative unimportance of early-ripening varieties in ancient and medieval rice culture in China is not agricultural but etymological. The striking fact is that although *hsien* [秈, 粞], the word which in its modern usage means early-ripening rice, first appeared in *Fang-yen*, a dictionary of regional dialects and slang compiled probably shortly before Christ, *hsien* did not begin to acquire its modern meaning until the twelfth century. *Fang-yen* simply says: 'South of the Yangtze *keng* [秔, 稉] (common non-glutinous rice) is called *hsien*.'[2] The word *hsien* is significantly missing in *Shuo-wen*, the famous lexicon completed in A.D. 100, but in it there is the character *lien* [稴, ⿰米廉], which, while differing slightly from *hsien* in pronunciation, is virtually the same thing. *Lien* is explained as simply 'non-glutinous rice'.[3] In practically all subsequent standard dictionaries, such as *Kuang-ya*, compiled in the fifth century in north China, *Yü-p'ien*, compiled by a southern scholar in 543, and two rhyming dictionaries of the seventh and eighth centuries, *hsien* is treated as an identical term to *keng*.[4] Thus from ancient times to the end of the T'ang period *hsien* was completely devoid of any early-ripening meaning.

The first dictionary which, though yielding no specific information on the word, refuses to identify *hsien* with *keng* is *Kuang-yün*, whose compilation was completed in 1007, five years before Champa rice was introduced from Fukien into the lower Yangtze and lower Huai River regions.[5] It was not until the appearance of the important contribution to natural history, Lo Yüan's *Erh-ya-i*, in 1174, or 162 years after Champa rice had begun to be disseminated in the main rice areas of China, that the word *hsien* began to acquire its modern connotation. He says:[6]

> There is another kind [of rice] which is called *hsien*. [Its grains] are smaller than [those of] *keng* and even less sticky [when cooked]. It ripens early. Nowadays people call *hsien* the early-ripening rice and *keng* the late-ripening rice.

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[1] Fan Cho, *Man-shu* (TSCC ed.), ch. 7, p. 31.

[2] It should be noted that the word *hsien* is missing in the best study of *Fang-yen* by the great scholar Tai Chen (1724–77), entitled *Fang-yen shu-cheng* (SPPY ed.). *Fang-yen's* definition of *hsien* is cited in two eleventh-century dictionaries, *Chi-yün* (SPPY ed.), II, 4a and *Lei-p'ien* (1876 ed.), ch. 7A, p. 4a.

[3] For the general rice nomenclature, cf. Ch'eng Yao-t'ien's (1725–1814) famous essay on the 'Nine Cereal Grains', *Chiu-ku k'ao*, collected in his *T'ung-i lu* (1803 ed.), pp. 30b–34b; and the famous etymologist Tuan Yü-ts'ai (1735–1815), *Shuo-wen chieh-tzu chu* (SPPY ed.), ch. 7A. It should be pointed out that Tuan errs in saying that the word *hsien* is missing in the sixth-century southern dictionary *Yü-p'ien*. Wang Nien-sun (1744–1832), another well-known etymologist, makes it emphatically clear in his *Kuang-ya shu-cheng* (SPPY ed.), ch. 10, pp. 32b–33a, that etymologically *hsien* does not have an early-ripening meaning and is simply non-sticky rice. For a non-technical discussion of rice nomenclature and authoritative brief description of rice varieties, cf. Huang Hsing-tseng (1490–1540), *Li-sheng yü-ching tao-p'in* (TSCC ed.).

[4] Wang Nien-sun, *op. cit.* ch. 10, pp. 32b–33a; *Yü-p'ien* (SPPY ed.), II, 34b. The two T'ang rhyming dictionaries are *Ch'ieh-yün*, compiled by Lu Fa-yen, etc. in the early seventh century, now photographically reproduced in *Shih-yün hui-pien* (1936), and *Wang Jen-hsü k'an-niu pu-ch'üeh ch'ieh-yün* (eighth-century manuscript photographically reproduced in 1947). I owe this information to Professor Fang-kuei Li of the Academia Sinica and the University of Washington.

[5] *Kuang-yün* (SPPY ed.), ch. 32, pp. 4a, 27b. It simply says: '*Hsien* is the *hsien* rice.' '*Keng* is the *keng* rice.'

[6] *Erh-ya-i* (TSCC ed.), ch. 1, pp. 3a–3b.

What the scholar Su [Su Kung, a famous herbalist of the seventh century A.D.] has said that *keng* is also called *hsien* needs qualification. There are yet other varieties grown nowadays in Kiangsu and Chekiang whose grains are small and they are resistant to drought and flood. When cooked the grains taste inferior and hard. The natives call them Champa rice.

In his equally famous chapter on local products in the history of his native Hui-chou in southern Anhwei, he says: 'The natives call *hsien* the small-grain rice and *keng* the large-grain rice.'[1] Down to the present day *hsien* and *keng* are still so called by people of lower Yangtze. Lo's discussion of *hsien* is most valuable in that it not only explains systematically for the first time the difference between *hsien* and *keng* but also testifies to the culture of indigenous early-ripening varieties before and after the introduction of Champa rice into China.

This leads us to another question. Whereas during the twelfth century the Champa and indigenous *hsien* were usually differentiated in Lo's works and in some south-eastern local histories, in the course of time the difference between the native and introduced early-ripening varieties became more and more blurred. For instance, Li Shih-chen, author of the monumental materia medica *Pen-ts'ao kang-mu*, a work completed in 1578, says: '*Hsien* is the kind of *keng* which ripens early and whose grains are more translucent. It is therefore called *hsien*. It originated from the state of Champa.'[2] Why is it that the word *hsien* had to await so long to acquire its independent and early-ripening meaning and, then, within a few centuries of the introduction of Champa rice into China it lost its identity to the latter? What is a proper explanation of this unusual etymological evolution of the word *hsien*?

From the standpoint of the history of land utilization the absence of early-ripening meaning in the word *hsien* and the paucity of references to early-ripening rice up to the eleventh century is not to be wondered at. For, in the first place, the per-acre yield of the late- and medium-ripening *keng*, judged from records of modern centuries, is so much heavier than that of early-ripening varieties. In the second place, in an age when the entire population of China was small, by modern standards at least, and the Yangtze area had yet to be systematically developed, farmers naturally took up the best clay soil of the low plains, deltas, basins, and river valleys which even today are mostly reserved for rice of the heavy-yielding late- and medium-ripening varieties.[3] Looking retrospectively, from the fourth century on north China was lost to the barbarians and the Chinese migrated *en masse* to the Yangtze area. The continual development of this vast rice area gradually brought about a revolution in the economic geography of China. By the eighth century lower Yangtze had definitely replaced north-western China as the economic centre of gravity and the granary of the country. The dependence of north-western China, still the political centre of gravity, on the surplus rice of the south-east was becoming more and more obvious. The Grand Canal, which linked up the south-east with the north-west, became the sole economic lifeline of the T'ang Empire (618–906).[1] Yet the peak population of T'ang China registered in 754 was only 52,919,309, as compared with the previous height of 59,594,978 registered in A.D. 2. Even if the 754 figure, as the great encyclopedist Tu Yu (735–812) pointed out, is considerably below the truth, owing to omissions and evasions,[2] it is likely that only certain parts of the Yangtze area, such as Kiangsu, northern Chekiang, and the heart of Szechwan, were relatively fully developed in the agricultural sense. The fact that in the vast and comparatively lately developed Yangtze area probably only the types of soil best suited to rice culture had been taken up is supported by Professor Kato's conclusion that the main contribution of the T'ang period to rice culture was the development of a large number of late- and medium-ripening varieties which generally required fertile land.

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[1] *Hsin-an chih* (1175 ed., 1888 reprint), ch. 2, p. 1b.

[2] In Li's opinion *hsien* as a rice term is derived from the character *hsien*, which is pronounced exactly the same and means early. This is, of course, an intelligent guess at best. *Pen-ts'ao kang-mu* (1603 ed.), ch. 22.

[3] An outstanding example is the continual cultivation of the heavy-yielding medium-ripening 'red-lotus' rice in the Su-chou area from ancient times to the present day. Cf. Kung Ming-chih (born in 1082), *Chung-wu chi-wen* (1909 reprint), ch. 1, p. 8b; *Yü-feng chih* (1251 ed. 1909 reprint), II, 3a–3b; *Ku-su chih* (1506 ed.), ch. 14, p. 3a; *Su-chou FC* (1748 ed.), ch. 12; and *Su-chou FC* (1861 ed.), ch. 2, pp. 1a–1b.

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While north China again became the theatre of wars and suffered economic decline following the downfall of the T'ang Empire in 906, the Yangtze area enjoyed almost continual peace and prosperity and steadily forged ahead as the key economic area in China. The increasing dependence of north China on the economic strength of lower Yangtze is most eloquently testified to by the choice of K'ai-feng in eastern Honan as the national capital of the Sung Empire, whereas previously the capital had either been Ch'ang-an in central Shensi or Lo-yang in western Honan. By so doing the Sung government could be assured of easier and abundant supply of southern grain and could free itself from the task of transporting millions of bushels of tribute grain through the hazardous western section of the T'ang Grand Canal.[3] The extent to which the population of the Yangtze area had increased since the middle of the eighth century cannot be known, owing to the lack of reliable information for the greater part of the tenth century. The population data of the eleventh century, too, are no doubt much under the truth. But even from the imperfect Sung data it can safely be said that the population in general and that of the Yangtze area in particular had been steadily increasing since the founding of the Sung dynasty in 960, as the number of households of the southern provinces had approximately tripled itself between 754 and the early twelfth century.[4] It is almost certain that by the eleventh and twelfth centuries the best heavy level land of the Yangtze area had been more fully occupied.

It was by no means coincidental that amidst continual growth of population the early-Sung emperors repeatedly exhorted the nation to improve food crops and to experiment with new ones. Although all Sung sources agree that the Champa rice was introduced from Fukien to the lower Yangtze and lower Huai areas in 1012, none of them mention the exact date of its introduction from central Indo-China to Fukien. The well-informed Buddhist monk Shih

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[1] Ch'üan Han-sheng, *T'ang-Sung ti-kuo yü yün-ho* (CP, 1946). This monograph on the role played by the Grand Canal during the T'ang and Sung periods is vital to an understanding of the economic history of medieval and early-modern China.

[2] Tu Yu, *T'ung-tien* (CP ed.), ch. 7.

[3] Ch'üan, *op. cit.* ch. 7.

[4] There are a number of good studies of Sung population by Japanese scholars. The more balanced views are presented in Kato Shigeshi's three articles, 'Population in the Sung Dynasty', 'The Totals of Landowning and Tenant Households of the Sung Dynasty', and 'On the Population Totals of the Sung Dynasty'. Originally published in various Japanese historical journals, they have been reprinted in his posthumous *Studies in Chinese Economic History*, II, 317–403. His main conclusion that the figures for the total population were very much under the truth and that the household returns were comparatively reliable is particularly important.

Wen-ying in his *Hsiang-shan yeh-lu*, a series of notes written before and during the years 1068–1077, gives the following account:[1]

> Emperor Cheng-tsung (998–1022), being deeply concerned with agriculture, came to know that the Champa rice was drought-resistant and that the green lentils of India were famous for their heavy yield and large seeds. Special envoys, bringing precious things, were dispatched [to these states], with a view to securing these varieties. From Champa twenty *shih* (Chinese bushels) of [rice] seeds were procured, which have since been grown almost everywhere. From central India two *shih* of green lentil seeds were brought back. It is not exactly known whether the green lentils now grown were originally planted in the imperial garden. When the first harvests were reaped in the autumn, [Cheng-tsung] called his intimate ministers to taste them and composed poems for Champa rice and Indian green lentils.

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When, on account of drought, rice crops partially failed in the lower Yangtze and lower Huai regions in 1011–12, Emperor Chen-tsung gave orders that 30,000 bushels of Champa rice be taken from Fukien and distributed to farmers of the drought areas, together with government instructions on its proper method of cultivation. From 1012 onwards the Champa rice began to receive national recognition. It is evident that at least a few years must have elapsed between the first introduction of Champa rice into Fukien and its wider dissemination in 1012.

It cannot be exactly known whether the Champa rice is of upland or lowland origin. B. E. Read, from his study of Li Shih-chen's *Pen-ts'ao kang-mu*, in which *hsien* and Champa became identical terms, regards it as 'Annamese upland rice'.[2] Professor Kato, on the other hand, based on a careful reading of official Sung records, reaches the conclusion that Champa rice is just another kind of rice grown in the paddy field.[3] The problem is more complex than either of them believed and any clear-cut answer seems impossible. The method of cultivating Champa rice, as officially propagated in the early eleventh century, was to put the seeds in a bamboo basket to be soaked in water for three days. Then the seeds were taken out and placed under shelter until they began to sprout. They should then be sown in paddies covered with two inches of water which had to be run out in three days. In five more days, when the young shoots were about two inches tall, the field needed to be inundated for another day. After all this the shoots were ready for transplantation.[4] This method seems to have been generally observed by peasants of lower Yangtze area since the early eleventh century.[5] From this and many other later sources it may be said that the Champa rice, under normal circumstances at least, was cultivated as a lowland rice.

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On the other hand, there were exceptional cases in which Champa rice was cultivated as an upland rice. Wang Chen, who published an important work on agriculture in 1313, for instance, discusses Champa rice under the heading of *han-tao*, or dryland-rice, as opposed to the ordinary *shui-tao*, or rice grown in irrigated paddies. He says:[1]

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[1] *Tse-shih-chai* photostat reproduction of Sung and Yüan manuscripts, ch. 4, p. 21b.

[2] B. E. Read, *Chinese Medicinal Plants from the Pen-ts'ao kang-mu* (Peiping, 1936).

[3] Kato, *op. cit.* pp. 638–74.

[4] The text of the original government circular on the method of cultivating Champa rice is given in *Sung-hui-yao kao* (National Peiping Library photostat ed.), CXXI, Section on 'Food and Money', ch. 1, 17b–18a.

[5] *Su-chou FC* (1379 ed.), ch. 42. Also Li Yen-chang, *Chiang-nan ts'ui-keng k'o-tao pien* (1834), pp. 32a–33a.

> Now Fukien has secured the seeds of Champa rice. It can be grown on highlands and is called dryland-Champa (*han-chan*). Its grains are large and taste sweet. It is a very good variety of dryland rice.

Judging from its quality, which differed considerably from that of the common twelfth-century Champa described by Lo Yüan, this dryland-Champa may have been a later variation. Although without detailed description of its method of cultivation, it is fairly certain that this Champa variety was grown as an upland rice, for some of the earliest Fukien local histories extant usually carefully differentiate the common Champa adapted to paddy culture from the dryland Champa.[2] Likewise, the 1540 edition of the history of T'ai-p'ing, now Wen-ling, county on the central Chekiang coast, sub-divides all early-ripening Champa varieties into dryland and paddy Champa.[3] The upland cultivation of Champa in western-central Honan was described in detail by a late-Ming scholar of Chekiang:[4]

[illegible] Tsung Emperor

> Formerly on account of drought in Chekiang Sung Chen-tsung ordered that 30,000 bushels of Champa rice be taken from Fukien and duly disseminated.... Champa is the present *han-tao*. Originally disseminated mainly in Chekiang, it is now grown in many highland areas in the north. This is because during Sung times Chiang Ao, a native of Chien-an (modern Chien-ou in Fukien), while serving as magistrate of Lu-shan in Ju-chou (Honan), introduced seeds of *han-tao* from Chien-an, in order to overcome the drought. This rice withstood drought so well that it yielded heavily. It could be stored for a long time. When grown in highlands it achieved local self-sufficiency year after year. It was cultivated in the same way as wheat. After sowing, the seeds were sprinkled with water and ashes of rice straw. The plant needed watering and manuring only at time of weeding. After watering and manuring three times the plant then put forth ears.

Since some plants have remarkable adaptability, it is inevitable that in a country as varied as China Champa rice should have been generally grown as a lowland rice and also as an upland rice in certain special districts. Although in some localities in the rice area Champa was cultivated both as lowland and upland rice, the natives usually took pains to differentiate Champa from the indigenous upland rice, which was a special crop for the aboriginal Shê people of mountainous districts of Chekiang and Fukien and the Yao people of hilly areas of Kwangsi and Kwangtung.[5]

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[1] Wang Chen, *Nung-shu* (Wu-ying-tien chü-chen-pen ed.), ch. 7, pp. 6a–7a.

[2] *Fu-chou FC* (1613 ed.), ch. 37, p. 1a; *Min-shu* (1629 ed.), ch. 130, pp. 1a–1b.

[3] *T'ai-p'ing HC* (1540 ed.), ch. 3, p. 4b.

[4] Hsü Hsien-chung, *Wu-hsing chang-ku chi* (first printed in 1615; 1914 reprint), ch. 13, pp. 3a–3b.

[5] *Hsing-hua FC* (1503 ed.) MS. unpaginated, ch. 13: 'Champa rice...is grown nowadays on high grounds and is drought-resistant. It is to be noted that *Shê-ku* (the rice of the Shê people) is also drought-resistant. But the latter requires the clearing of mountains by fire. The land is thus rendered fertile. Within two or three years, however, the soil is exhausted and they have to move on to other places. This practice is not what lowland farmers can afford.' Similarly, *Yung-ch'un HC* (1526 ed.) MS unpaginated, ch. 1. For a brief description of the practice of fire-farming of the Yao people of Kwangsi, cf. *Kwangsi TC* (1800 ed.), ch. 91, p. 10b. For a more detailed differentiation of Champa from native upland rice in Kwangtung, cf. Ch'ü Ta-chün, *Kuang-tung hsin-yü* (1700 ed.), ch. 14, p. 3b; and *Kwangtung TC* (1827 ed. CP reprint), p. 1825. There is reason to believe that farmers of the rice area who had been so used to paddy culture generally viewed upland culture with scepticism.

The official Sung records do not clearly indicate the length of time required for the growth of Champa rice. Some Sung and Yüan local histories of lower Yangtze give different versions as to its original maturing period. The 1202 edition of the history of K'uai-chi, a part of modern Shao-hsing, county in Chekiang, for example, testifies: 'The natives call all Champa varieties *Chin-ch'eng*, whose exact meaning is not known. Champa is also vulgarly called "sixty-day".'[1] This evidence and some similar ones, however, have to be used with caution. First, it betrays a lack of precise knowledge about the history of Champa culture in the locality. Secondly, from the terseness of this account it is impossible to know whether Champa rice had been called 'sixty-day' since the very beginning of its introduction into the locality or since relatively late in the twelfth century. Thirdly, it is contrary to more specific statements of other local histories of the lower Yangtze area. The 1223 edition of the history of T'ai-chou in central Chekiang coast, for instance, while mentioning the then earliest-ripening variety of 'sixty-day', carefully says that 'Champa rice... has been commonly called down to the present day the "hundred-day-yellow".'[2] This version of the original maturing period of Champa is firmly upheld by Ming and Ch'ing local histories of the T'ai-chou area. The 1540 edition of T'ai-p'ing county makes it emphatically clear that the original Champa ripened in about 100 days: 'Owing to drought in Chekiang in 1012 Champa seeds were secured from Fukien and disseminated here. It was called the "hundred-day-yellow". Later on there has been yet another kind which ripens in only sixty days. It also originated from Fukien.'[3] The 1332 edition of the history of Chen-chiang prefecture in Kiangsu lists six kinds of *hsien* which matured between sixty and well over 100 days after transplantation, but thoughtfully comments: 'The hundred-day variety originally came from Champa.'[4]

The question of the original period required for the growth of Champa rice is more than of purely academic interest. For the development of the extremely early-ripening varieties since the introduction of Champa rice into China was the result of centuries of effort on the part of unknown but ingenious Chinese plant breeders, a scientific achievement which deserves highest praise.[5] Furthermore, but for the development of those extremely early-ripening strains large areas of inferior and sub-marginal rice land could never have been turned into productive paddies. From the evidence cited above, and much else which would be rather repetitious, it can fairly safely be said that Champa rice, which originally required about 100 days after transplantation to ripen, answered one of the most urgent needs of people of the relatively densely populated lower Yangtze and called the attention of southern farmers to the importance of further developing early-ripening and drought-resistant varieties. Through natural variation[1] and through purposeful isolation of new strains, southern Chinese farmers had developed, in the course of the eleventh and twelfth centuries, varieties which matured in but sixty days, varieties which must have greatly helped in expanding the frontier of rice culture.

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[1] Since Champa is pronounced by the Chinese as 'Chan-ch'eng', Chin-ch'eng is one of the common corruptions. *K'uai-chi chih* (1202 ed. 1926 reprint), ch. 17, p. 1a.

[2] *Ch'ih-ch'eng chih* (1223 ed. 1818 reprint), ch. 36, pp. 3a-3b.

[3] *T'ai-p'ing HC* (1540 ed.), ch. 3, p. 4b.

[4] *Chen-chiang chih* (1332 ed. 1923 reprint), ch. 4, pp. 1a–1b.

[5] While plant breeders in traditional China were generally unknown peasants, at least one plant breeder is known. He was the K'ang-hsi Emperor, who reigned from 1662 to 1722. The rice planted in one of his gardens usually ripened in the ninth month. Once strolling there in the early part of the sixth month he noticed that an unusually tall and sturdy plant had already ripened. He isolated the seeds, in order to see whether they would ripen equally early next year. To his agreeable surprise, they again ripened in the sixth month and yielded well. When planted immediately after the first harvest this new variety could secure a second crop before frost. It was later successfully grown in his summer resort in Jehol and distributed to Kiangsu and Chekiang. It was generally called the 'Imperial Rice'. K'ang-hsi's literary works, cited in the agricultural encyclopedia, *Shou-shih t'ung-k'ao* (completed in 1742, 1826 ed.), ch. 20, pp. 2a–2b.

The effect of the introduction of Champa rice and further development of early-ripening varieties is manifold. First, these early-ripening varieties greatly helped to ensure the success of the double-cropping system for which Chinese agriculture, particularly that of the rice area, is world famous. As rice in the Yangtze area is almost invariably a summer crop, a shorter period of growth made possible for the same piece of land to be sown to wheat, rape, or other winter crops after rice was harvested. The average *keng* rice of ancient and medieval China, which took at least 150 days to ripen, would make such a rotation of crops precarious if not entirely impossible in many places. A modern local history of the Hang-chou Bay area explains: 'In our district it is advantageous to grow early-ripening rice. There are practically none who would grow late-ripening varieties. This is because in the paddies there are usually "spring flowers" (i.e. wheat and rape).'[2] Secondly, for centuries peasants had worried about the precarious state of food supply during the long intervening period between the harvest of winter crops and the harvest of rice. The early-ripening rice now became valuable fill-in crops, so much superior in taste and food value as compared to other auxiliary crops.[3] Thirdly, the early-ripening rice, which requires much less water than the late-ripening *keng*, made possible the cultivation of higher land and hilly slopes which could be fed by spring or rain water. A thirteenth-century history of Ningpo says: 'Land near the hills is too dry. Land near the sea is too alkaline. Neither suits the *keng* and glutinous rice.'[4] For this reason the rice of the Ningpo area was mostly of the early- and medium-ripening varieties.[5] Similarly in inland hilly north-western Chekiang 'only Champa can be grown on dry hilly land'.[6]

The dissemination of the early-ripening rice, like the propagation of other food crops, was necessarily a slow and gradual process. So far as can be ascertained, up to the end of the Southern Sung period (1127–1270) the early-ripening varieties seem to have been disseminated to a significant extent only in Chekiang, southern Kiangsu, Fukien and Kiangsi. Nearly all the local histories compiled during the twelfth and thirteenth centuries which are still extant contain some reference to early-ripening rice, but coincidentally most of them are of Chekiang and Kiangsu. In Fukien the systematic terracing of hills and the ingenious technique of water-control on mountain slopes, which were consequential upon the introduction of Champa rice, created a profound impression on some Sung and later observers.[1] During the Ming period (1368–1644) Champa and other early-ripening varieties were found in practically all eight prefectures of Fukien, although the extent of their cultivation varied from one place to another.[2] In Kiangsi Champa varieties were extensively grown, as an early-thirteenth-century official testified: 'The rice grown in Kiangsi is mostly of Champa varieties. There are the eighty-day Champa, hundred-day Champa, and hundred-and-twenty-day Champa.'[3]

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[1] A good scientific discussion on rice is Yampolsky, *op. cit.* II, 8: 'There are many factors that result in the modification of any given variety. Plants as a rule are notorious hybridizers. Because the transference of pollen by wind, insects or other agencies cannot be adequately controlled, hybridization has gone on uninterruptedly, and the rice plant is no exception. The resultant combinations, stable or unstable, complicate the varietal picture. Mutations certainly must have added numbers to the list. Selection, conscious and natural, has released latent differences which under conditions of a new environment, accidental or controlled, have been given an opportunity to express themselves. These germinal differences, stemming from hereditary reservoirs, may express other differences imposed upon them by a peculiar kind of environment. These new differences are not necessarily inherent in the germ plasm, but are responses to a particular environment and may persist as long as the environment remains consistent. Lowland cultivation, upland cultivation, and length of growing season are only three of the modifying influences which call forth definite morphological and physiological expressions.'

[2] *K'an-chih pu-lu* (1935 ed.), pp. 2b–3a. Although this is a twentieth-century local history, the basic factors determining that peculiar rotation system may have been the same for a number of centuries. For an explanation of the expression 'spring flowers', cf. the unusually well-documented *Hu-chou FC* (1874 ed.), ch. 32.

[3] *Chin-hua FC* (1578 ed.), cited in *Chekiang TC* (1735 ed. CP reprint), p. 1881; and *Hsi-chiang chih* (1720 ed.), ch. 27, p. 25b.

[4] *Ssu-ming chih* (1297–1307 ed. 1854–79 reprint), ch. 4, p. 12b.

[5] *Ssu-ming chih* (1228 ed. 1854–79 reprint), ch. 4, p. 16b.

[6] *Wu-hsing chih* (1201 ed. 1914 reprint), ch. 20, p. 3a.

In other areas, however, early-ripening rice seems to have made relatively little headway up to the Mongol conquest. Although in hilly southern Anhwei medium- and early-ripening rice had always been more important than the late-ripening *keng*,[4] the area around Wu-hu, one of the main rice markets and centres of early-ripening rice production in modern times, was agriculturally under-developed.[5] The Huai river plain, which serves as an area of demarcation between the rice-producing south and the wheat-producing north and into which Champa rice was introduced by the imperial order of 1012, suffered permanent economic decline after the downfall of the Northern Sung dynasty in 1126. Since then it became a major battleground between the Chinese and the Juchens, who had conquered north China, and throughout the twelfth and thirteenth centuries remained a vast desolated area.[6] Any agricultural progress that this area had made during the eleventh century must have been nullified by wars and large-scale southward migration of the Chinese. Hupeh, an important rice-exporting province in modern times, suffered from similar reasons. Its retarded agricultural conditions were aptly described by Lu Chiu-yüan (1139–93), the famous Neo-Confucian philosopher of the intuitive school:[7]

> The land in southern Kiangsu and the province of Kiangsi differs drastically from the land here [in Hupeh]. In Kiangsu and Kiangsi land seldom lies idle. Here idle land abounds. In the former the land is generally classified into early and late fields. On the early fields rice of the Champa varieties is usually grown. On the late fields the late-ripening *keng* is cultivated. Here no such distinction is made. There is, however, the distinction between irrigated paddies and non-irrigated land. On the non-irrigated land usually only one crop is grown, either wheat, or legumes, or hemp, or millet, or vegetables, or mulberry

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[1] One of the earliest descriptions of terraced rice fields is a Sung work, Fang Yün, *Po-chai pien*, printed in *Pai-hai*, II, 4b–5a. The famous agricultural writer of Mongol period, Wang Chen, in his *Nung-shu*, gives detailed description and illustration of the method of cultivating terraced field. The best Ming description of terracing in Fukien is Hsieh Chao-che, *Wu-tsa-tsu* (1795 Japanese ed.), ch. 4.

[2] *Pa-min t'ung-chih* (1490 ed.), ch. 25, pp. 1a–1b.

[3] Wu Yung (*chin-shih* or doctor of 1209), *Ho-lin chi* (Ssu-ku chen-pen ch'u-chi ed.), ch. 39, pp. 6b–8b.

[4] Lo Yüan, *Hsin-an chih*, ch. 2, p. 1b.

[5] Ch'üan Han-sheng, 'The Production and Marketing of Rice during the Southern Sung Period', *Bulletin of the Institute of History and Philology, Academia Sinica*, x (1948), 432 (in Chinese).

[6] *Ibid.* pp. 411–13.

Lu Chiu-yüan, *Hsiang-shan ch'üan-chi* (SPPY ed.), ch. 16, pp. 2a–2b.

trees. Rice is not planted. Only in the paddies is rice planted. Had the non-irrigated land of this province been in Kiangsu and Kiangsi, most of it would have been turned into [Champa-growing] early fields.

The agricultural system of Hupeh in late-Sung times was therefore marked by its lack of early-ripening rice and double-cropping system. Although the paucity of specific Sung records on rice varieties for other provinces makes an overall generalization impossible, it seems reasonable to assume that save for some indigenous early-ripening varieties, such as those mentioned in *Ch'i-min yao-shu*, the Champa varieties had yet to make systematic inroads into the rest of China's rice area.

Notwithstanding the fact that the dissemination of Champa rice during the Sung period was mainly confined to three or four provinces, its effect on food production and population growth was already felt within one century of its introduction. For in the years 1102 and 1110 the numbers of officially registered households for the entire country exceeded 20,000,000. Since it has been shown by some capable Japanese historians that the official Sung household returns, in contrast to the notoriously under-registered 'total' population, were comparatively near the truth,[1] it seems reasonable to believe that by the opening of the twelfth century China's actual population exceeded, for the first time in her history, the 100,000,000 mark.

The dissemination of Champa varieties must have been going on throughout the subsequent periods. From available Ming records and local histories the sixty-day variety, which had been practically confined to the lower Yangtze area during Sung times, had reached as far as Kwangtung[2] and became fairly common throughout the rice area. The 'white-Champa', 'red-Champa', and other early-ripening varieties had struck permanent root in Kwangsi before the compilation of the 1531 edition of its provincial history.[3] The 1574 edition of the history of Yunnan province places the early-ripening *hsien* as the foremost crop of Meng-hua prefecture.[4] While giving no detailed listing of rice varieties, the 1621 edition of the history of Ch'eng-tu prefecture, in the heart of the Szechwan basin, particularly points out the fact that the 'white-Champa' had been instrumental in conquering dry fields.[5] Even in Honan during the sixteenth century the early-ripening *hsien* was very common.[6]

While most of the vulgar names for early-ripening varieties are too fanciful to be of real use for our purpose, the continual dissemination of early-ripening rice may be conveniently shown by the names of those varieties which reveal their geographic origins. In the lowland districts of southern Anhwei, for instance, an area which had been agriculturally under-developed during Sung times, there were in the fifteenth century not only varieties such as the 'white sixty-day' and 'red sixty-day', but also varieties bearing names like the 'Kiangsi early', 'Hu-kuang (Hupeh and Hunan) *hsien*', and 'Kwangtung *hsien*'.[7] These lowland districts around Wu-hu have since become one of the leading producing centres of early-ripening rice.[8] By the early seventeenth century, perhaps much earlier, in as southerly a place as Ch'üan-chou in southern coastal Fukien there were early-ripening varieties called 'Su-chou red' and 'Honan early'.[9]

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[1] See n. 4, p. 206 *supra*.

[2] *Shao-chou FC* (1542 ed.), ch. 2, p. 30b.

[3] *Kwangsi TC* (1531 ed.), ch. 21, section on 'Food and Money', p. 1a.

[4] *Yunnan TC* (1574 ed., 1934 reprint), ch. 3, p. 27b.

[5] *Ch'eng-tu FC* (1621 ed.), ch. 5, pp. 5a–5b.

[6] *Honan TC* (1555 ed.), ch. 11, p. 1b.

[7] *Ch'ih-chou FC* (1518 ed.), ch. 3, p. 15b.

[8] *T'ai-p'ing FC* (1673 ed.), ch. 13, p. 1b.

[9] *Min-shu* (1629 ed.), ch. 130, p. 1b.

In the eighteenth century another valuable northern variety was added which bore the name of 'Shantung seed'.[1] Hupeh and Hunan, two provinces which during Ming times forged ahead as leading rice-exporting areas,[2] must have introduced and developed many new rice varieties in the course of time. Unfortunately, neither the handful of Ming local histories of these provinces extant nor the 1684 edition of the combined histories of Hupeh and Hunan yield any systematic information on our subject.[3] However, when Hunan had its first independent provincial history in 1820, not only were there certain extremely early-ripening varieties called 'forty-day Champa' and 'fifty-day Champa', but over a dozen varieties which, judged by their names, had originated from Su-chou, Nanking, Liang-shan (Szechwan), Kuei-yang and Ssu-nan (all in Kweichow), Kiangsi, Kwangtung, Yunnan, and Indo-China.[4] In fact, had local histories generally recorded the geographic origins of local rice varieties, we would have found many cases like Wu-chiang, a county in the heart of the lower Yangtze delta, that long before the middle of the sixteenth century an early-ripening variety had been introduced from as far as Yunnan.[5] All this, and much else, indicates the extent to which the early-ripening varieties had been disseminated.

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For centuries after the introduction of Champa rice the quickest-ripening variety required sixty days to mature. The availability of a fairly large number of quickly ripening varieties ranging from 120 to 60 days had unquestionably helped to solve the problem of crop-rotation in the rice area. Yet the quickest-ripening varieties were not necessarily welcomed everywhere. In the richest rice area like the lower Yangtze delta, where innumerable streams, canals, and ditches made a perfectly controlled irrigation possible, the late-ripening *keng* still reigned supreme because of its much heavier per-acre yield. Even in some hilly districts peasants sometimes preferred the medium-ripening *hsien*, which gave a better yield than the early-ripening.[6] But there were marginal rice areas which called for varieties which would ripen even more rapidly than the 'sixty-day' or for special strains which could cope with unusually menacing natural conditions. The marshy flats of Kiangsu north of the Yangtze were one of such blighted areas which were visited by the annual mid-summer flood and were consequently water-submerged for a greater part of the year. For this reason Kao-yu and T'ai-chou, both in the heart of the Kiangsu flats, virtually became the experimental farm of extremely early-ripening varieties. To beat the annual mid-summer flood, peasants of Kao-yu developed the 'fifty-day' in the sixteenth century.[7] Some inland districts in south-western Chekiang and in lakeside Kiangsi may also have independently developed this 'fifty-day' variety.[8] It was the 'fifty-day' that saved peasants of Kao-yu from total crop failure during the terrible flood of 1720–1.[9] In the eighteenth century the 'forty-day' was

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[1] *Ch'üan-chou FC* (1753 ed.), ch. 19.

[2] During the T'ang and Sung periods there was the saying: 'When Su-chou and Ch'ang-chou (all in southern Kiangsu) reap a bumper harvest, the rest of the country suffices.' This reflected the overwhelming importance of southern Kiangsu as a rice-producing and exporting area. During the Ming period the saying had been gradually changed to: 'When Hu-kuang (Hupeh and Hunan) reaps a bumper harvest, the rest of the country suffices.'

[3] *Hu-kuang tsung-chih* (1684 ed.), ch. 14 on local products lists only special products without mentioning common cereals.

[4] *Hunan TC* (1820 ed.), ch. 175, pp. 1b–3a.

[5] *Wu-chiang HC* (1558 ed.), ch. 9, pp. 13b–15a.

[6] Lo Yüan, *Hsin-an chih*, ch. 2.

[7] *Kao-yu CC* (1572 ed.), ch. 3, p. 1b.

[8] *Chiang-shan HC* (1623 ed.), ch. 3, p. 3b; *Hsi-chiang chih* (1720 ed.), ch. 21.

[9] *Kao-yu CC* (1724 ed.), ch. 3, p. 32a.

developed independently in Heng-chou in southern Hunan and in Kao-yu.[1] When Kiangsu was particularly hard hit by the flood of 1834–5, the 'thirty-day' variety, which was said to have been developed in Hupeh, was rushed in and distributed to peasants of Kiangsu flats.[2] The development and dissemination of these extremely early-ripening varieties by peasants of marginal rice areas indicate that rice culture in China proper was about to reach its saturation point. The 'thirty-day' variety is probably the quickest-ripening rice ever recorded in world history.

In addition to these extremely early-ripening varieties which partially solved the difficulties of peasants of marshy flats, there was the need in certain localities in the rice area for the kind of rice which could be planted late but could ripen quickly. This was because of the limited supply of good land and the unusually crowded local rotation system. By the Ming period at the latest certain Champa varieties had been developed which could withstand cold so well that they were planted in mid-summer after the field was entirely cleared of spring crops or early rice. Since they were harvested in late fall or early winter, they were called either 'cold Champa' or 'winter Champa', which are recorded in a number of early-modern local histories of Chekiang, Fukien, Kiangsi, and Hunan.[3] Aside from the value in facilitating a multiple cropping system, they provided peasants of lakeside Kiangsi with a weapon with which to combat the challenge of annual flood. Sung Ying-hsing, a native of Kiangsi and author of the most authoritative treatise on traditional Chinese technology, *T'ien-kung k'ai-wu*, which was first printed in 1637, testified to the prevalence in the lake districts of Kiangsi of one of such varieties which was usually planted in the sixth month, when the flood began to retreat.[4] This particular reddish rice must have been fairly famous, for in 1608 when a northern Chekiang county suffered from an unusually severe flood and was on the point of losing all its rice crop, the magistrate introduced this reddish rice from lakeside Kiangsi to be planted after the recession of flood water. In spite of its late planting, it ripened quickly enough to ensure the peasants of a fair harvest. T'ai-chou in the Kiangsu flats was equally famous for this reddish rice.[5] Since then the reddish rice of Chiu-chiang, the main port of northern Kiangsi, and T'ai-chou have been recorded in various local histories.[6] By the early eighteenth century the practice of growing quickly-ripening but late-planting rice after the recession of flood became more and more common in Kiangsu and Kiangsi flats.[7]

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[1] *Heng-chou FC* (1763 ed.), ch. 19, p. 1b; and *Kao-yu CC* (1783–1813 ed.), ch. 4, p. 1a.

[2] *Kao-yu CC* (1843 ed.), II, section on 'Food and Money', 1a. It should be pointed out that a late-Ming Chekiang official and historian, Chu Kuo-chen, in his miscellaneous notes entitled *Yung-ch'uang hsiao-p'in* (1622 ed.), ch. 2, p. 33a, already mentions a 'thirty-day' variety without naming its place of origin.

[3] *Shao-hsing FC* (1488–1505 ed.), cited in *Chekiang TC* (1735 ed., CP reprint), p. 1855; Chu Kuo-chen, *Yung-ch'uang hsiao-p'in* (1622 ed.), ch. 2, p. 33a; *Fu-chou FC* (1613 ed.), ch. 37, p. 1a; *Min-shu* (1629 ed.), ch. 130, p. 1b; *Chien-ch'ang FC* (1673 ed.), ch. 3, p. 5a; and *Hsiang-t'an HC* (1553 ed.), I, 14a.

[4] *T'ien-kung k'ai-wu*, I, 2b.

[5] Chang Lü-hsiang (1611–74), *Yang-yüan-hsien-sheng ch'üan-chi* (1871 ed.), ch. 17, pp. 5a–6b, 'An Account of the Reddish Rice'.

[6] For a good, though by no means exhaustive, collection of rice varieties of various provinces, cf. the eighteenth-century agricultural encyclopedia, *Shou-shih t'ung-k'ao* (1826 ed.), ch. 20 *passim*.

[7] The red rescripts of Emperor Yung-cheng (1723–35), *Yung-cheng chu-p'i yü-chih* (undated late-Ch'ing ed.), ch. 35, p. 64b and ch. 57, p. 106a. It is to be noted that whenever a normally well-irrigated area was hit by flood, one of these varieties was usually recommended for planting after the retreat of the flood water. It thus saved people of Shao-hsing in Chekiang from starvation after the flood of 1849. Cf. Fan Yin, *Yüeh-yen* (1878 ed.), I, 27b and II, 54b.

By way of summing up, the unusual etymology of the Chinese word *hsien* is in a sense a most fitting summary of the history of rice culture and land use in China. For when China's population was relatively small from the beginnings of her history to the tenth century of our present era, there was little need to tackle inferior land. Since in the history of land utilization the best land suitable for best crops was as a rule taken up first, the prolonged reticence in Chinese agricultural records and dictionaries about the early-ripening *hsien* is easily conceivable. Professor Kato's generalization that ancient Chinese rice was mostly of the early-ripening sort is not only against our evidence but against certain grains of truth in the Ricardian Theory of Rent. It was not until the late-tenth and early-eleventh centuries when the population of certain parts of the Yangtze area was relatively large and the best level land suitable for the heavy-yielding *keng* had been substantially taken up that there was any systematic need for tackling inferior land. Not until then did *hsien* begin to acquire its modern early-ripening meaning. Because of the publicity given to the Champa rice, the difference between indigenous *hsien* and introduced early-ripening varieties became less and less clear; so unclear that by the Ming times at the latest *hsien* and Champa had become identical terms. From Professor Kato's careful comparison of medieval and modern names of *keng* varieties, it may be said that although there has been a not insignificant development of new *keng* varieties since the end of the T'ang period, the major improvements in early-modern and modern rice culture have been mainly in the field of early-ripening rice.

It is true that in the history of so slowly moving an industry as agriculture, let alone the self-sustaining agriculture of China, few events can really be called revolutionary. Yet the introduction of Champa rice and the subsequent dissemination of all early-ripening varieties, native and imported, ultimately produced results which would have been beyond the fondest dream of the early-Sung emperors. Within two centuries of the introduction of Champa rice the landscape of the eastern half of China's rice area had already been substantially changed. By the thirteenth century much of the hilly land of lower Yangtze and Fukien where water resources and climatic and soil conditions were not sufficiently favourable to the cultivation of *keng* rice had been turned into terraced paddies. The early-ripening rice not only ensured the success of the double-cropping system but prolonged the economic hegemony of the Yangtze area. One sure indication of such hegemony was that the population of the rice area was increasing much more rapidly than the population of north China throughout the Sung, Yüan, and Ming periods.[1] During the Yüan and Ming periods the cultivation of early-ripening rice became common in the south-western provinces and in Hupeh and Hunan, the two provinces which have been the main rice bowl of modern China. In the 1830's it was estimated by the governor of Kiangsu and an authority on early-ripening rice, Lin Tse-hsü, who was responsible for the precipitation of the first Anglo-Chinese War a few years later, that the total national output of the early-ripening rice approximately equalled that of the late-ripening *keng*.[2] Since there can be little doubt that with the extension of irrigated areas and some not insignificant improvements in water-pumps and other agricultural implements during the early-modern centuries the national production of *keng* rice must have been

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[1] For an illuminating general discussion of south China's rise to economic and cultural prominence during early-modern times, cf. Ch'ien Mu, *Kuo-shih ta-kang* (CP, 1940), chs. 38–40.

[2] Lin's preface to Li Yen-chang, *Chiang-nan ts'ui-keng k'o-tao pien*.

somewhat increased since the eleventh century, it seems reasonable to conclude that China's total rice output had at least doubled itself between 1000 and 1850. As the per-acre yield of early-ripening rice is considerably less than that of *keng*, it seems certain that the total area under early-ripening rice must have exceeded the area under *keng*. In other words, China's rice area, too, had more than doubled itself in the course of some eight and a half centuries. Moreover, since there is a good deal of qualitative evidence showing that the Chinese agricultural system was becoming increasingly intensive in terms of human labour employed, owing to an almost continual growth of population during the Ming and early-Ch'ing times, and since in most places the early-ripening rice indirectly enhanced local food production by promoting a better rotation system, the effect of early-ripening rice on the overall food supply of early-modern China must have been even greater than Lin's statement indicates.

As to the approximate shares which various cereal crops contributed to the total national food output in early-modern times, Sung Ying-hsing, certainly one of the best qualified contemporary experts, believed that rice was unquestionably the most important crop which accounted for as much as seventy per cent, with wheat as a poor second.[1] Some modern students may think that Sung, being a native of rice-producing Kiangsi, might have over-stressed the importance of rice especially in view of the fact that his estimate does not accord with our modern knowledge. Although his estimate is only an intelligent guess, yet the broad statement from so eminent an authority cannot easily be brushed aside. When modern students look into the historical circumstances peculiar to early-modern China, such as, for instance, the permanent economic decline of north-western China after the late eighth century, the frequency of wars and disturbances in north China, as contrasted to the prolonged peace and commercial development of the south, the shift of the economic, cultural, and demographic centres of gravity steadily southward, the relative scarcity of crops suitable to northern dryland that could not grow wheat,[2] the crude agricultural system of the north as compared with the intensive rice cultivation in the south,[3] the almost incessant construction of irrigation works and expansion of the frontier of rice culture in southern China since the opening of the eleventh century, Sung's approximate estimate may not have been a great exaggeration.

In retrospect, Sung's statement was made at a time when another long-range revolutionary change in China's cropping system and land utilization had just got under way. Although it took more than two centuries since Sung's lifetime for rice culture to approach its saturation point in China proper, already various American food plants, such as maize, the sweet potato, and the peanut, had been introduced into China during the sixteenth century.[1] Before 1700 the Irish potato had also made its debut in the mountainous northern Fukien.[2] Since then these new food plants have enabled the Chinese, hitherto largely a plain and valley folk, systematically to tackle dry hills, lofty mountains, and sandy loams. The opening-up of millions of acres of highlands, a process which, owing to its relatively recent dates and availability of abundant local records, can be traced in detail,[3] substantially helped to redress the old agricultural balance which had been so badly upset by the dissemination of early-ripening rice. Furthermore, as the south had been for centuries much more densely populated, it was the northern provinces which witnessed a more rapid growth of population under the benevolent despotism of the early-Manchu rulers. Whereas in 1393 the aggregate population of the area equivalent to six modern provinces of north China amounted to, in round number, only 15,500,000 as compared to a total population of 35,000,000 for six modern southern provinces, by 1787 these same areas had a population of 103,000,000 and 136,000,000 respectively.[4] This change in the geographic distribution of population, which took place mainly after Sung's death, of course had important bearing on the shares accounted for by various food crops in the total national food production. Thirdly, the rise of a more variegated national economy partially brought about by the continual influx of European and Japanese silver since the early sixteenth century[5] had created new demands for industrial and cash crops, such as cotton, vegetable oils, indigo, sugar cane, fruits, and tobacco. It is true that not all these cash crops gained at the expense of rice. But as the south was economically and commercially more advanced, the shrinkage of the area under rice due to the rise of specialized farming was not inconsiderable[6] especially when rice culture was about to suffer from the Law of Diminishing Returns. In view of all these historical factors and of the simple fact that in as late as 1931–7 rice still contributed 47 per cent to the aggregate cereal production in China proper,[7] Sung Ying-hsing's estimate may indeed be regarded as reasonable. Whatever the decline in the share accounted for by rice in China's total cereal production since Sung's lifetime, his statement stands out as a tribute to the overwhelmingly important role that rice, particularly early-ripening rice, had played in the economic history of early-modern China.

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[1] *T'ien-kung k'ai-wu*, 1, 1b, 6b.

[2] Be it noted that sorghum, an important northern crop in modern times which can be grown on land unsuitable for wheat, was a relatively late comer. It was not introduced into north China from western Asia until the late thirteenth century. Cf. Michael Hagerty, 'Comments on Writings concerning Chinese Sorghums', *Harvard Journal of Asiatic Studies* (1940).

[3] For scornful comments on the crude agricultural system of north China, cf. Hsieh Chao-che's famous *Wu-tsa-tsu*, ch. 4, pp. 36a–38a. As late as 1738 Yin Hui-i, governor of Honan and himself a native of that province, said in a famous memorial: 'In the south the produce per *mu* (about one-sixth of an acre) is measured by the bushel. In the north the produce per *mu* is measured by the *tou* (one-tenth of a bushel).' To encourage more intensive farming in north China, he suggested that a law be issued which should limit the size of a farm let to tenants to 30 *mu*. His memorial is cited in full in Hsü Hsi-lin, *Hsi-ch'ao hsin-yü* (Ch'ing-tai pi-chi ts-ung-k'an ed.), ch. 9, pp. 3a–4b.

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[1] Cf. my article 'The Introduction of American Food Plants into China', *American Anthropologist*, LVII (April 1955).

[2] Berthold Laufer, *The American Plant Migration*, Part I, *The Potato* (Field Museum of Natural History, 1938).

[3] This will be dealt with in a future article of mine.

[4] The six northern provinces are Hopei, Shantung, Honan, Shansi, Shensi and Kansu. The six southern provinces are Kiangsu, Chekiang, Anhwei, Kiangsi, Hupeh and Hunan. The population returns of the late-fourteenth century and of the period 1776–1850 are relatively accurate, while those of the long intervening centuries are either returns of the 'fiscal population' or otherwise seriously under-registered. For a systematic evaluation of the data for various subperiods, cf. my *Population of China, 1368–1850*. The 1787 provincial breakdowns are based on the Board of Revenue archives given in Lo Erh-kang, 'The Population Pressure in the Pre-Taiping-Rebellion Years', *Chinese Social and Economic History Review* (The Institute of Social Sciences, Academia Sinica), VIII, no. 1 (1949) (in Chinese).

[5] Liang Fang-chung, 'The International Trade and Silver Movements during the Ming Period', *Ibid.* VI, no. 2 (1939) (in Chinese).

[6] For a brief discussion on the rise of commercialized farming in late-Ming and early-Ch'ing times, cf. my *Population of China, 1368–1850*, ch. 5, 'Factors relating to Population Changes'.

[7] The 1931–7 figures are the estimates of the Chinese government given in T. H. Shen, *Agricultural Resources of China* (Ithaca, 1951), Appendix, table 2. There are no data for Manchuria, which was little developed during Sung's lifetime. Inner Mongolia is excluded from our calculation, in order to make the agricultural area compatible with that of Sung's days. The cereal crops included in our calculation are rice, common and glutinous, wheat, barley, millet, proso millet, sorghum, oats, field peas, broad beans, and soybeans. These practically include all the common cereal crops grown during Sung's lifetime.

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BACK TO GOLD, 1252

By ROBERT SABATINO LOPEZ

De tous les appareils enregistreurs, capables de révéler à l'historien les mouvements profonds de l'économie, les phénomènes monétaires sont sans doute le plus sensible. Mais. . . ils ont été et sont, à leur tour, des causes: quelque chose comme un sismographe qui, non content de signaler les tremblements de terre, parfois les provoquerait.

MARC BLOCH

I

THE striking of fine gold coins in Genoa and Florence, 1252, touched off one of the greatest chain reactions in monetary history. Silver, pure or alloyed, had been for half a millennium almost the sole precious metal minted in Western and Central Europe. Over the hundred years following 1252, one country after another introduced a fine gold coinage, not to abandon it until very recent times. It was the most spectacular token of the economic gains accumulated by the Catholic world during the preceding two or three centuries, and a tangible symbol of the initial superiority of the West over the East—for the Islamic world and Byzantium, which minted gold when Europe was content with silver, now debased their gold or ceased to strike it.

But the return to gold did more than provide symbols and tokens: it relieved the strain which economic growth was placing on a chronically inadequate currency. Up to 1252 the great majority of European states had clung to the monetary system established in the doldrums of Carolingian times: the silver *denier* was the highest minted denomination, twelve of them being counted as an imaginary silver shilling and 240 of them as an imaginary silver pound. Yet what was suitable to the age of Charlemagne could hardly suit the peak of the medieval Commercial Revolution: the purchasing power of silver had dwindled while the demand for means of payment skyrocketed. Uninformed of economic laws and unrestrained by common or public laws, all those who had command over mints descended the slippery slope of debasement at various speeds. The weight of the *denier* plunged down, and the dark hue of copper and lead shrouded the glitter of the fine metal. Some countries tried to revive the primitive standard, not by discontinuing the debased 'petty' *denier* but by adding to it a heavier and purer 'large' *denier* or groat. This usually passed as a multiple of the old *denier* but was not much heavier than Charlemagne's diminutive coin, and its silver had lost much of its value. No matter how fast the moneyers turned out petty *deniers* and groats, the ever-quickening tempo of the Commercial Revolution seemed to outrun them.

There was credit, of course, and beside silver and billon (alloyed silver) the circulation included foreign gold coins and a few gold moneys of Europe's outer rim. Willingly or unwillingly, the East had supplied the West with the more valuable currency the latter needed for its larger transactions, throughout the long 'silver age' of Catholic Europe. But the gold coins of the East, like the silver coins of the West, in most cases had so much deteriorated in weight and alloy that by 1252 they were no longer fit to serve as supra-national tender. At any rate, the mounting requirements of the West tended more and more to outgrow not only its own monetary output but also whatever could be obtained from the East. At this point the sudden appearance of Western gold coins endowed medieval Europe with the appropriate tool of its own 'golden age'.

This much has been agreed upon, but little else has been established to the satisfaction of all historians. There is an open debate concerning the relation of the new Western coins to older gold moneys of the East or of the outer rim of Europe, such as the *besant*, the *dinar*, the *tarì* and the *augustalis*. The primogeniture of the Genoese gold coin over its more famous Florentine brother, the florin, is often challenged or brushed aside. Above all, the economic and political circumstances that brought one European mint after another back to gold have not yet been fully determined. The general background we have so far described—mainly along the lines of Marc Bloch's memorable essay on 'the problem of gold in the Middle Ages'—may account for the success of the new gold coins. It does not explain why the decision was first taken in 1252, at Genoa and Florence, or why the choice fell on gold coins, or why the weight of these coins radically departed from that of the late Roman solidus, which had been hitherto the basis of all gold currencies.

If the existing coins, silver groats and billon *deniers*, seemed too few or too small, there were at least two alternatives to the striking of gold. Silver coins heavier than the groat might have provided a solution along more familiar lines: this would have taxed the existing mines more heavily, but the secular decline in the purchasing power of the metal indicates that silver was more easily available than in Carolingian times. Again, the growing use of exchange contracts, bank transfers, and other instruments of credit might have led to the adoption of some kind of paper money: China, with a still weaker coinage (it consisted of copper alone), had resorted to paper money long before. On the other hand, if the purpose of the new coinage was merely to take the place of debased or scarce Eastern gold coins, it would have been simpler to reproduce their full original weight, or even to issue domestic copies of those coins, as had often been done at an earlier period.

Nor was it necessary for the monetary reform to occur precisely when and where it did. Both deficiency of currency and the economic growth which engendered the deficiency originated much earlier than the mid-thirteenth century; if gold coins were called for, one may wonder why the call was so long unheeded. Moreover, Genoa and Florence were certainly important business centres, but they were not the only ones which could and should take the initiative. Siena, Florence's great competitor in the banking business, was one of the last to adopt a gold coinage (1333). Venice, entrenched in Constantinople ever since 1204, deliberately allowed the traditional minting of gold in that capital to be discontinued, and delayed until 1284 the striking of its own gold coin—the ducat, which was to become the major rival of the florin in international reputation.

These objections do not imply that the explanations so far offered for the return to gold in thirteenth-century Europe are altogether wrong, but that they seem oversimplified. Economic theory and broad hindsight have been properly used, for modern historians may perceive general trends and connexions which were hidden to the very authors of the monetary reform. But it seems equally necessary to take a closer look at the contemporary sources—none of which, very strangely, mentions any of the farsighted considerations which seem so cogent and almost inescapable to us. Without forgetting the long-range significance of the reforms, which would not be affected in the least if their authors had been utterly unaware of it, we must endeavour to reconstruct the intentions which led the Genoese, the Florentines, and, later, other nations to break a centuries-old tradition and resume the striking of gold.

The problem has a certain analogy, in reverse, with that of the abandonment of gold minting in the early Middle Ages, on which so much ink has been spilled since Henri Pirenne's *Mohammed and Charlemagne.* But it should not be as hard to investigate. Though the thirteenth century has not bequeathed to us the lavish amount of statistical material that modern economists regard as indispensable to form an opinion, it is not as desperately poor in sources as the eighth or the ninth. Perhaps a historian who is painfully aware of his inadequate training in economic theory may nevertheless observe that different opinions persist in monetary questions even in the face of the most elaborate documentation of our own times. He will not push his partiality for the thirteenth century so far as to assert that its sources represent the happy medium between too few and too many, but he feels that an examination of thirteenth-century evidence may yield fairly reliable results for that century. They may help also in the interpretation of the obscure eighth century, and perhaps suggest interesting terms of comparison with the age in which we live.

Four years ago—1952—was the seventh centenary of the unchallenged birth date of the florin, a date which Florence itself, absorbed as she was in the fifth centenary of Leonardo da Vinci's birth, forgot to celebrate. Who will say that ours is the age of materialism? The writer of the present paper, a Genoese teacher in the United States, was the only one who commemorated the florin as best he could—in footnoted articles—not without reaffirming the disputed priority of the Genoese coin. His was a laborious, but obviously a beggarly offering: two of his most learned friends told him the articles were so obscure they could not make out what he was driving at. It has therefore seemed proper briefly to go over the substance of the articles, with a few additional remarks, in a paper written on a clearer and simpler plan.[1]

II

Let us begin with the plainest of the points under discussion, the priority of the Genoese gold coin (*ianuinus*, *genovino*, genoin) over the Florentine (*florenus*, *fiorino*, florin). As we shall see later, this is not merely a question of retroactive municipal pride. The whole interpretation of the return to gold hinges on it.

Actually the statements in the basic chronicles of the two cities are so explicit that one wonders how a doubt could ever have been raised. The *Annales Ianuenses*, compiled under the sponsorship of the Genoese government by authoritative citizens who had personally witnessed the facts, pithily say: 'In the same year (1252) was struck the gold coin of Genoa.' Giovanni Villani, the Florentine businessman and historian who is regarded as the best source even for events occurring slightly before his birth (he was born after 1252), talks more glibly: 'At that time was begun the striking of the good coin of fine gold, at 24 carats, and it was called gold florin, and each of them was valued twenty shillings, and this happened...in the month of November of the year

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[1] To save space, I shall quote in this paper only a few works which have come to my attention after the publication of my Italian work on this subject, *Settecento anni fa: Il ritorno all'oro nell'Occidente duecentesco* (Quaderni della Rivista Storica Italiana, Edizioni Scientifiche Italiane, Naples, 1955). Full references to primary and secondary sources are available in the footnotes of that volume and are easily traced in its index of names.

1252', and so forth for a full chapter. Both the genoin and the florin, then, are said to have been struck in 1252—the latter, however, almost at the end of the year, whereas the former may have appeared at the very beginning. A Genoese priority, albeit of a few months only, may be postulated. At any rate there is no ground whatsoever for speaking of Florentine priority.

These plain statements have been assailed from two opposite directions. Two modern Genoese scholars (followed by others who did not take the trouble of rechecking the sources) have maintained that gold coinage in Genoa began as early as 1149 or thereabouts. A far larger number of scholars of various nations have doubted the existence of a Genoese gold coin before 1264, or have discounted a possible issue of genoins in 1252 as a fleeting experiment, made in servile imitation of the older florin.

The first contention is disposed of quickly. It is based upon a faulty reading of the passage of the Genoese *Annals* which we have just cited (the reading was then corrected through the use of better manuscripts and needs no further mention here), and on a contract of 1149 whereby the Genoese commune farmed out, besides other fiscal revenues, the 'usufruct and income' of gold money for the next twenty-nine years. Interesting though this contract is, it does not prove that Genoa struck gold coins of its own at that period. The gold money may have consisted of imported foreign coinage on which a tax was collected and farmed out. Or it may have been a domestic imitation of foreign coins: we know that sometimes this was done in some Western mints to supplement the Byzantine and Islamic coins which trade or war carried to Europe, though we have no specific information for Genoa. Lastly, the farmers may have planned to launch a Genoese gold coin at a later moment within the twenty-nine years without succeeding in carrying out their plans. No Genoese gold coin that can be dated farther back than the mid-thirteenth century has ever been found, none is mentioned in the surviving tens of thousand notarial contracts before 1252, and the Genoese *Annals*, which report every change in the silver coinage since the beginning of the twelfth century, say nothing of gold coins before 1252. I am afraid Genoese retroactive patriotism had better concentrate on such just and deserving causes as the true fatherland of Columbus, and yield on unsubstantiated claims.

The charges of the champions of the florin will take longer to refute because they are at once complex and vague. People used to point out that no reference to a Genoese *denarius aureus ianuinus* had been found in notarial contracts or other documents earlier than 1264. But recently the writer of the present paper has come across a reference of 25 November 1253, which falls only one year short of Villani's claim for the florin. Then, in a notarial chartulary of 1259, he has found five contracts mentioning the shipping to the Levant and to Sicily of 'genoin gold *deniers*' for a total value of £2,040 Genoese—a very substantial sum for the time. This should also eliminate the contention that the striking of the gold genoin was no more than a fleeting experiment. It is true that five or six contracts mentioning that coin are still an insignificant minority as compared with the mass of contracts which merely cite the traditional money of account, the imaginary Genoese silver pound of *deniers*. But all references to specific coins are very unusual, unless the coins are especially wanted or especially unwanted. Inasmuch as most obligations entail a debt which is payable in any type of coin, all that matters is that the debtor promises a certain payment, which is most conveniently expressed through the common denominator of the standard money of account. Normally a creditor did not care to indicate whether he would rather receive gold genoins, silver groats, *deniers* of billon, or another currency, any more than we state what bills, coins, or other tenders we prefer to receive in payment for a debt in guineas or pounds.

Still, the margin of one year between the earliest extant notarial mention of the gold genoin and Villani's initial date for the gold florin, as well as the improbable loophole between that date (November 1252) and the less precise date of the Genoese *Annals* (1252: January, December, or somewhere in between?), may leave room for the last defensive position to which the champions of the florin often retreat. The genoin, they contend, was a prompt, but servile imitation of the florin. As a matter of fact, the weight of the latter (which came in only one denomination, of approximately 3·53 grams) was identical to the weight of the largest denomination of the gold genoin (which came also in two smaller denominations, weighing respectively one-fourth and one-eighth of the largest).[1] It has been argued that this weight, unparalleled in pre-existing gold coinages, was chosen only because it was worth exactly twenty Florentine silver shillings and thus gave the last crowning touch to a bimetallic, or indeed trimetallic system in which the three traditional units of the Carolingian (and English) scale were represented respectively by the gold florin, the silver groat, and the billon *denier*.

To understand this argument, we must recall that in many states of Europe the debased *denier*, formerly the highest minted denomination, had been joined by the groat, which had a much larger silver content and usually passed as an exact multiple of the *denier*. By 1252 the *deniers* circulating in Florence were so debased that one Florentine groat was worth exactly twelve *deniers* and hence could play the part of the shilling in the old system of account pegged to the *denier*. The gold florin, which was worth twenty groats, embodied the hitherto uncoined pound. In Genoa the proportions were different because the groat was not worth twelve of the local *deniers*, but the Genoese—it is claimed—jumped on the band-wagon as soon as they saw the immediate success of the florin.

The truth of the matter is that the success of the florin was in no way immediate. A Florentine chronicler slightly older than Villani, Paolino di Piero, after recording briefly the beginning of florin coinage in his city, tersely comments: 'There was virtually nobody who wanted it.' To be sure, the diffidence did not last long; moreover, one state after another followed suit in introducing new gold coins. But this may merely indicate that the time was ripe for the injection of pure gold in the swelling blood stream of Europe; it does not mean that Florence was copied. Only one of the towns which attempted to strike gold in the next few years, Perugia, avowedly took 'the weight and alloy of the commune of Florence' as a model for its gold coinage; and the attempt failed. Both Henry III of England and Louis IX of France based the weight of their gold coins on that of their own silver coins, with the intention of establishing a bimetallic system where one of the former would be worth respectively twenty and ten of the latter. A monetary reform in Castile, where gold coinage had existed long before 1252, borrowed the weight of the Almohad large *dinar*, probably with a slight modification, in the hope that it might fit the German ponderal system as well. Charles of Anjou adjusted the weight of his new coin of pure gold to the gold content of the old augustal of Frederic II, with just enough deficiency to short-change his subjects who had to yield the old coin at par. Venice and Milan adopted the same weight as Florence and Genoa, but made the design of the coins so different that any confusion with either the florin or the genoin was impossible. Copies and forgeries of the florin began only in the early fourteenth century, when its prestige had risen with the financial power of Florence.

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[1] Actually, if we calculate with mathematical precision the theoretical weights of the coins, we find slight differences between moneys which we know were used interchangeably. In theory, the florin ought to have weighed 3·53 gm., the genoin 3·52, and the ducat 3·56. In fact, irregular workmanship and wear annulled these differences and made them insignificant in the eyes of the bankers and the public, who accepted at par any genoin, florin, or ducat 'of good weight'. It would be less anachronistic to describe the standard of a coin by stating that so many of them were 'cut' from an ounce or a pound of metal, as medieval mint regulations usually say. But such a description would not be very enlightening to the modern reader who does not know the exact weight of that particular ounce or pound. Moreover, the very weights used in the mints were not always mathematically accurate.

Again, the assertion that Florence alone had a monetary system into which the new gold coin fitted snugly tells only part of the truth. Even as the largest denomination of the gold genoin was identical in weight and alloy to the gold florin, so the Genoese silver groat had the same weight and alloy as the groats of Florence and other Tuscan towns (Lucca, Pisa, Siena, and Arezzo) which for many years had agreed to strike silver coins of uniform standards. If the gold florin was exactly equivalent to twenty Florentine groats, the largest gold genoin presumably was equivalent to twenty groats. But it could not count as a Genoese pound, because the Genoese groat was only worth six Genoese *deniers*. Unlike Florence, Genoa had foregone the possibility of inserting the new coins into the old system of account, pegged to the *denier*. Both the shilling and the pound remained imaginary units, groats and genoins being reckoned at whatever worth they happened to have in *deniers*.

The difference stemmed from contrasting notions of the functions of the state in economic matters. Florence, like most medieval states, made bimetallism and trimetallism a base of its monetary policy. That policy seemed to triumph in 1252 with the completion of the consolidated system of gold pounds, silver shillings, and billon *deniers*, but it committed the government to the Sysiphean labour of readjusting the relations between the different coins as the ratio between the different metals changed, or as one or another coin was debased. By 1271 a law tried vainly to impose a new rate, whereby a gold florin would have to be exchanged for twenty-nine silver groats. This meant that the trimetallic version of the Carolingian system of account already had lost its pound unit.

Genoa, on the contrary, in conformity to the principle of restricting state intervention as much as possible, did not try to enforce a fixed relation between coins of different metals. The Genoese groat, originally issued with a value of four billon *deniers*, by 1252 had risen to six *deniers* (not twelve, because the Genoese *denier* was not debased as fast as the Florentine). The gold genoin of the largest denomination, issued with a value of twenty groats, was thus equivalent to 120 *deniers*, or a half pound of account, or ten shillings of account. This relation, however, was suggested and not imposed. Basically, the gold coinage of Genoa was not meant to integrate the silver and billon coinages, but to form an independent system, with its own multiples and fractions. That is why there was not only one denomination of the gold genoin, but three.

To determine the reasons which led Genoa to the introduction of a gold standard, tentatively related to the silver and billon standards but not chained to them, we must investigate the relation of the new coins to the gold coinages which already existed elsewhere. This will lead us to the heart of the matter, the economic and political background of the return to gold.

III

While innumerable reasons conspire to suggest readjustment of the metallic content of coins, two factors tend to restrict the area of choice in monetary reform. One factor is the practical necessity of clinging to standards commensurable with the existing system of weights: it is convenient to instruct mint workers to 'cut' from each unit of weight of uncoined metal (such as the ounce or the pound of silver or gold) a round number of coins, without leaving fractional remainders. The other factor is the advisability of enticing a public ever reluctant to accept unfamiliar coins: it is wise to make the reformed coins similar to some older coin which commerce already has accredited. These two principles, universally respected during the Middle Ages, were so compelling that not even the doctrinaires of the French Revolution dared transgress them. Their franc was new in name only: it had the same metallic content as the old pound tournois, and it weighed exactly 5 gm. in the recently adopted metric system.

Commensurability was achieved in the Florentine reform of 1252: the gold florin, with its 3·53 gm. of pure metal, weighed one-eighth of the Florentine ounce (of approximately 28·24 gm.) and hence one-ninety-sixth of the Florentine pound (of approximately 339 gm.). Since the largest denomination of the genoin (3·52 gm.) was incommensurable with the Genoese ounce (of approximately 26·40 gm.), a superficial observer might jump to the conclusion that the weight was borrowed from Florence and that obviously the genoin must be a later imitation of the florin. But such a conclusion would be wrong. The largest genoin was commensurable with the Genoese pound (of approximately 317 gm.); mint workers could 'cut' ninety of these coins in a pound, which is a slightly easier proportion than 96 to one, used for the florin. What is more, the medium-sized genoin (of 0·88 gm.) was commensurable not only with the pound but also with the Genoese ounce, of which it was one-thirtieth. This alone would lead us to think that the basic unit of the Genoese system of gold coins was not the largest but the medium genoin. The smallest genoin (0·44 gm.) would thus represent the half of the basic unit, and the largest would represent the quadruple. We shall see in a moment that proportions of this kind had been long in use in the Mediterranean commercial circles.

At a first sight it is not easy to find how the second principle, similarity to some already existing coin, was followed either in Genoa or in Florence. No gold coin prior to 1252 weighed exactly 3·53 or 3·52, 0·88, or 0·44 gm. The common origin of all Christian and Muslim gold weights was that of the late Roman *solidus* of slightly more than 4½ gm., or its simplest fractions (one-third, one-fourth, or one-half). Naturally the weight and fineness of actual coins had undergone many successive modifications, which it would be tedious to follow up country by country—they have been described in some detail in my Italian work on this subject—but which may be summarized as follows: By 1252 the alloy had been restored to almost 24 carats (that is, virtually pure gold, as in the late Roman original) in the majority of the Almohad coins of Morocco; it was often good in the coinages of the Tunisian Hafsids and Egyptian Ayyubids; it was seriously debased in the Byzantine empire exiled at Nicaea, in the shrunken domains of the Crusaders, and in the kingdom of Sicily. The weight had remained practically unchanged in the Byzantine empire (where no fractional coins were struck); it had been raised to a trifle more than the original standard in the Almohad and Hafsid mints (where the half coin also was struck); it had become irregular in Egypt, in the Holy Land, and, to a larger extent, in Sicily. Leaving aside the other states, whose coinages provide no clue to that of Genoa, let us consider Sicily and the Holy Land at a closer range.

In the kingdom of Sicily two gold standards were concurrently used in 1252. The elder had as its basic unit the *tarì*, derived from the Arab *ruba'i* (the quarter of the Islamic version of the *solidus*), which had been introduced to the island as early as the ninth century and to the adjoining mainland shortly after. No full *solidus* was struck in those regions at that period, but contracts and laws down to the thirteenth century lent it a theoretical existence by reckoning four *tarì* (real coins) as one *soldo di tarì* (money of account). At first the *tarì* contained more than 1 gm. of almost pure gold, so that four of them almost made up the 4½ gm. of the original solidus; but debasement, different in the different mints, gradually whittled down the hard coin and the money of account pegged to it. By the early twelfth century, when Roger II unified the Norman possessions, a *tarì* could vary in alloy from more than twenty to less than ten carats, and in weight from 0·23 gm. (which may have been intended to pass as a half *tarì*) to 1·89 (which must have been regarded as a multiple of the basic unit).

With the attitude to compromise which was typical of the Hauteville family, Roger did not try to go back to pure gold, but selected an alloy which was more or less average—16⅓ carats, the balance being three-fourths silver and one-fourth copper—and made it mandatory throughout the kingdom. His successors resisted the temptation of tampering further with the mixture (it was a strong temptation, for minor debasements of such a complex alloy might have escaped detection even from professional assayers), so that the Sicilian coinage gradually affirmed itself as one of the stablest in Europe at the very period when nearly all others were sinking. By 1252 its 16⅓ carat gold was one-third carat better than that of the Byzantine *solidus* or *besant*, formerly the paragon of coinages. On the other hand, it did not seem essential to Roger II to restore a uniform weight to coins that had wandered so far astray. So long as the royal stamp vouched for a constant alloy, anybody could easily check the weight on the scales. Thus it was that the coins continued to be issued in every conceivable size, and accepted not by the number but by the weight. An 'ounce of *tarì*' would consist of a variable number of coins, to which cuttings were normally added to make up the exact weight. To preserve the memory of what once were uniform coins, however, book-keepers and merchants divided the ounce into thirty *tarì* of account, each weighing what had been the average weight of the *tarì* before the coins became wholly irregular. The Sicilian ounce was identical to the Genoese ounce; hence the imaginary *tarì* was frozen at 0·88 gm., the half *tarì* at 0·44 gm., and the *soldo di tarì* at 3·52.

These were probably the models of the Genoese gold coins of 1252—not hard coins, but moneys of account. Genoa merely translated into reality the three Sicilian units, known to book-keepers and businessmen, which represented standard weights of 16⅓ carat coined gold. The three genoins, however, were better than the models in being 24 carat gold. This improvement, too, had been to some extent prepared by a reform of Frederic II which had given origin to the other gold standard used in Sicily by 1252. The proud emperor could not be content with gold coins as unimpressive as the irregular *tarì*, yet lacked the determination that was later to lead Genoa to discard all baser admixtures. In 1231 a treaty with Tunisia insured for him a substantial annual tribute, some of which may have been paid in good Hafsid coins (including unalloyed *dinars* weighing 4·50–4·75 gm.), and some in Senegalese gold dust (the famous *aurum de Paleola*, obtained in a natural mixture of about 20½ carats of gold, a little more than two carats and a half of silver, plus inferior ores).[1] In the same year the imperial mints of Southern Italy began to strike an impressive gold coin, the *augustalis*, bearing on the obverse the laureate head of the emperor and on the reverse an eagle. Its golden content, about 4½ gm., matched that of the Tunisian *dinar* (and of its forefather, the late Roman *solidus*). In addition to gold, the coin also contained silver in the same proportion as the *aurum de Paleola* (that is, slightly more than 2½ carats silver to 20½ carats gold), plus some copper (as in the old *tarì*, which was, however, much poorer in noble metals), to make up a total weight of 5·28 gm. This weight, scrupulously maintained for a half century, made the augustal more valuable than the unalloyed *dinar*. True, its gold was not the purest, but it was better than in the majority of 'gold' coins available at that time and equal to the ingots or satchels of *aurum de Paleola* which the Genoese and other merchants sometimes used in lieu of coins. It is no wonder that the augustal eclipsed the renown of the *tarì* and was eagerly sought for in France, England, and the Holy Land. Yet there are indications that lighter but unalloyed coins enjoyed a greater prestige in the very country where the augustal was struck. In a contemporary Sicilian poem, an enterprising young man failed to seduce a coy maiden by boasting of his owning heaps of augustals. 'I am a lady worth Almohad gold', she replied—that is, my virtue is full 24 carats. (Nevertheless, she surrendered eventually.)

Twenty-four carat coins must have seemed a good asset to the Genoese when they made ready for the economic conquest of long coveted Sicily after the death of Frederic II, their arch-enemy, in December 1250. Innocent IV, their ally and fellow-citizen (he was born a Fieschi of Genoa), showered privileges upon them while claiming the kingdom for the Holy See; Frederic's own throne was pawned to Genoese businessmen by his son-in-law in return for gold. Striking gold by the Sicilian standard of weight could hardly be a problem for the Genoese, who used at home the same system of weights. Yet they might have hesitated to try monetary types which had an existence only in bookkeepers' accounts, but for a development in the currency of the Holy Land which pointed to the same direction.

Ever since the time of the First Crusade the Latin conquerors had struck gold coins which imitated the Muslim *dinar*—or rather counterfeited it, for the inscriptions were blundered, the alloy was base, and the weight usually was between 3 and 3½ gm., i.e. at least 1 gm. short of the weight of the regular *dinar*. Trade placed many of these coins in the hands of Genoese merchants, but did not influence their coinage: while it is possible that Genoa itself put out some copies of good *dinars*, she had no reason to copy a poor copy. Things began to change late in 1250, when the legate of Innocent IV in Palestine put pressure on the local princes to eliminate from the Holy Land a coinage which was not well-formed enough to conceal the scandalous fact that its inscriptions praised Mohammed and bore dates of the Muslim era. Gradually and reluctantly, because the credit of the coinage was vested in its traditional appearance, the princes complied. They issued first coins with Christian formulae in Arabic script, then coins bearing no Arab legends but the image of the *Agnus Dei* and a Latin legend in praise of Christ which had often been used by the Crusaders as a battle-cry. Both the image and the legend might look unsuitable in a country surrounded by Muslims and populated mostly by Muslims, but the Papal legate was not in a conciliatory mood, and Louis IX, who was in Palestine with an army, put 'teeth' into ecclesiastical exhortations. Significantly, the Latin legend also was used for the ritual acclamation of the French kings and might be regarded as a compliment to Louis if not quite an acknowledgment of his suzerainty.[1]

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[1] The date 1231 has been universally accepted by the older writers who deal with the relations between Frederic II and Tunis. However, a recent article of R. Brunschvig, which was accessible to me only through a reference by F. Giunta, *Medioevo mediterraneo* (Palermo, 1954), contends that the treaty of 1231 was a renewal of a ten-year agreement concluded in 1221. Even so, it is possible that new clauses, added in 1231, provided for an increase of that portion of the tribute which was paid in gold.

Financially and economically, however, the greatest power in the Holy Land was neither Louis IX nor Innocent IV but Genoa, whose merchants and bankers had lent very large sums to both of them and to every important crusader, and whose trade with Acre and Tripoli was then at its peak. Both the loans and the trade had to be protected. It probably occurred to the Genoese that a gold coin of their own, with the same outward appearance as their silver coins which had long been current throughout the Levant, might provide a solution pleasing to all. Except for a cross in the obverse (a sign to which the Muslims had grown accustomed), their coinage contained nothing objectionable to an Arab—and, of course, nothing that could disturb even the most pious crusader. Twenty-four carat gold would make the Genoese coins far more attractive than the alloyed money of the Crusaders; indeed, they would be more reliable than the Ayyubid gold of Egypt which was not always pure. The *Agnus Dei* coin, like its local predecessors, was erratic in weight; the few specimens that have survived range from 3·31 to 3·625 gm. The contents of the imaginary *soldo di tarì* and that of its Genoese realization were just half-way between the two weights, i.e. 3·52 gm.

Is it permissible to conclude that the first spark in the chain reaction which led the West back to gold was produced by the eagerness of the Genoese to further their commercial interests in Sicily and Syria? We have seen that their own chronicle gives no clue to their intentions. But the system of weights adopted in 1252, with its peculiar series of denominations (the half, the whole, and the quadruple, with nothing between the latter two) can be accounted for only by comparison to the Sicilian money of account; the predominance quickly gained by the largest denomination points to the Holy Land. The earliest known contracts where the 'genoin gold *deniers*' are specifically mentioned provide for the shipping of the coins to Sicily and Syria. Moreover, it stands to reason that gold coins would be especially useful abroad (for silver would suffice in small local transactions, and large payments within the town were made most frequently by bank transfer or direct exchange of commodities, without any cash changing hands), and that prospects for the introduction of a new gold coin would seem brighter in trade with countries used to a gold coinage of their own.

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[1] The latest work on this subject is P. Grierson, 'A Rare Crusader Bezant with the *Christus vincit* Legend', *American Numismatic Society Museum Notes*, VI (1954), 169 *et seq.* It contains full bibliographic references.

Still it seems equally evident that the Genoese would hardly have tested in foreign trade a coinage so new to them and to the outside world without some internal pressure, some hope that it could be useful at home as well. Otherwise they should have found it more practical to issue faithful copies of one or another accredited foreign coin, as had been done in many places many times before. Our next step, then, will be to explore the economic conjuncture in Genoa about the year 1252.

IV

It has taken a long time for both the pure economists and the pure historians to accept the contention of some economic historians, that cyclical fluctuations are not a prerogative of the Industrial Age. I am not even sure that such obvious secular trends as the long depression of the early Middle Ages, the expansion of the centuries between the early tenth and the early fourteenth, and the contraction of the age which art historians properly call 'Renaissance', are universally recognized as cyclical phenomena. But this matters little for our purpose, since nobody doubts that the thirteenth century was on the whole a period of substantial economic growth; and I shall not have to outline here the long-range monetary trends that accompanied the long-run economic development in Europe, the Near East, and the Far East. All explanations that have so far been suggested for Europe's resumption of gold coinage rest on the assumption that sustained demographic and economic expansion created an ever-growing demand for additional means of payment. Both the broad assumption and the broad explanation are warranted, but, as we noted at the beginning, they are not specific enough. The secular trend cannot account for the fact that the first move was made precisely at Genoa in 1252.

We have to narrow down our investigation to what we might call the major business cycles, not without stressing our awareness of the fact that no one can expect in a medieval city exactly the same patterns and dynamic factors as in a modern state. And even if the business microcosm of thirteenth-century Genoa had been as complex and tense as the world of business we know today, the inadequacy of surviving evidence would dull the colours and blur the details of the picture. Nor has the evidence been systematically collected and appraised. Within these limitations, however, I would not hesitate to speak of a complete cycle of approximately fourteen years, with an upswing from 1248 to early 1255 and a downswing from late 1255 to 1261. If this diagnosis is correct, the introduction of gold coinage occurred at the peak of the phase of prosperity and was followed fairly closely by the beginning of recession.

The first noticeable acceleration occurred when a second war—the Crusade of Louis IX—was added to the war against Frederic II and his allies which Genoa had been waging ever since 1238. The first war had started inauspiciously: except for some help from Innocent IV and Piacenza, Genoa was alone against a great coalition which blockaded the town by land and sea. But the tide had turned: by 1248 Genoa had fully regained the initiative, and two years later the death of the principal enemy threw the scattered remnants of the opposition virtually at her mercy. The Crusade, of course, was not so successful, but apart from a few mercenary seamen Genoa got off fairly lightly. Expanding opportunities for trade in the Holy Land, Sicily, and Sardinia amply compensated for whatever temporary setback the Crusade may have provoked in Egypt. Land trade, no longer hampered by blockade, spread widely in every direction and was swollen by the credits accruing in France through the loans to Louis IX. For the first time in history, there are indications that Genoa's business transactions in the European West may have exceeded in value those with the Levant and the South. Young industries had found protection in the blockade and now blossomed out; the woollen industry, which had been almost negligible around 1238, nearly quadrupled its output between 1248 and 1255. Still more significant was the expansion of shipbuilding, the queen of Genoese industries. Ligurian ship-yards built the majority of about 1,800 ships of all sizes and description that are said to have assembled for the Crusade under the command of two Genoese admirals; meanwhile very large fleets fought Genoa's own war, and there were still ships for the soaring oversea trade. Available data on other branches of trade, building, and immigration, all concur in giving an impression of boom.

Developments in the fields of banking, credit, and minting are obviously of particular relevance to us. The financial costs of the two wars were borne respectively by the Genoese commune and the French crown, but it was private capitalists—natives of Genoa or resident aliens—that extended credit or advanced cash at a considerable profit. Moreover, the period 1248–55 seems to have been of decisive importance in the growth of semi-permanent, unlimited partnerships of the *compagnia* type among merchants and bankers. Such partnerships were not altogether new, but formerly they had appealed to fewer men and attracted smaller investments than temporary ventures of the *commenda* type, restricted to one voyage or one year, and involving the investor in no risk beyond the loss of the sum he had put out. Again, foreign capitalists had long played an important part in Genoese business, but never before had there been such an invasion of bankers and merchants from nearly every Lombard and Tuscan city. The very technique of credit operations, which had constantly progressed during the last hundred years, displayed at this period a maturity not to be surpassed for many years to come.[1]

All of these are 'impressions', for it would be vain to hope for statistical precisions at this remote period. We have some figures, however—'patchy' figures, but significantly larger than any that have been found for the earlier years. In the extant documents of 1253 the recorded loans of one Genoese family to Louis IX amounted to more than £20,000 Tournois. In the same year, a Florentine *compagnia* in Genoa cashed *tarì* gold worth £6,000 Genoese to return to Frederic II's son the throne which his son-in-law had pawned two years earlier for £2,000. In March 1253 the contracts of the two surviving notarial minute-books—only two are left of perhaps 200 such books kept in Genoa at the time—disclose business transactions for a total of more than £12,800 Genoese, almost £9,500 Provisine, £3,245 Tournois, nearly £1,000 Pisan, nearly 1,300 'Syrian gold *besants*' (*Agnus Dei* coins, or *dinars* of reliable Muslim mints), and still other sums in other currencies. Naturally a substantial proportion of these figures does not represent actual payments in cash. Bank transfers and contracts of exchange eliminated the need for hard coinage in very many cases, but some coins must perforce have changed hands. Then there were the innumerable transactions which cannot be traced in notarial books because they were recorded or secured by other means, or because they required no durable record, or because they were not individually worth the expense of a notarial instrument. Salaries, for instance, must have risen considerably, if even apprentice woolmakers, who before 1248 do not appear ever to have received any cash wages, were by 1253 paid from thirty shillings a year to 10 *deniers* on every workday.

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[1] On Genoese banking at this period, and most particularly on the bank of Guglielmo di Stefano Leccacorvo, I have recently gathered a good deal of evidence in a volume, *La crisi della banca piacentino-genovese nel 1256–1259*, which is about to appear (Olschki, Florence, 1956?) It contains fuller references than were given in the volume on the return to gold minting.

Indeed there is direct evidence that businessmen were affected by the shortage or the unreliability of coins, and that some of them—chiefly bankers—strove to insure their own supply through control of mints and mines. Formerly the contracts used to quote figures in Genoese pounds or some other well-known money of account, without specifying what coins should be actually tendered. From 1248 on, however, we come across a growing number of contracts demanding payment in 'groat' or 'strong' coins of a determinate type, or even adopting stringent formulae such as the following: '£2,053. 10*s*. 8*d*. Genoese... for which we promise to give...so much silver in old Genoese groats or Venetian groats, at the rate of £5. 8*s*. 8*d*. Genoese per pound of silver, as will make up that sum.' This particular pledge was taken by Giovanni Ascherio and Co. and Guglielmo Leccacorvo and Co., two banks of Genoa whose partners were natives of Piacenza. Ascherio belonged to the international trust of bankers who in 1248 farmed the mint of Genoa (but this, of course, gave him no authority to modify the standard of the coins). Leccacorvo's multifarious activities concerning minting and mining have left the following traces in the extant documents. He bought up the rights of a Florentine bank in the mint of Cuneo and became one of the four 'partners, lords, and makers' of the 'strong' *deniers* struck in that city. He joined with the representative in Genoa of Siena's largest bank—which had just obtained a mortgage on the richest silver mines in Tuscany—to buy the right to strike silver groats, of the same standard as the Genoese groat, in the feudal holdings of Iacopo Fieschi, Innocent IV's nephew. On behalf of other members of the Fieschi family, he invested capital in the pioneer trade with the southern Moroccan port of Safi, the terminal point of a caravan route which conveyed to the coast the famous Paleola gold.

Would it be too rash to infer that the Leccacorvo bank, alone or jointly with other banks, was the driving force behind the momentous Genoese reform of 1252? Circumstantial evidence may be considered when direct proof is hopelessly beyond reach. The power of Innocent IV was great in Sicily and the Holy Land, whose trade would be served by the gold genoins. Iacopo Fieschi in 1251 is singled out by the Genoese Annals as the most influential citizen of Genoa. Guglielmo Leccacorvo himself was an important man. We know that his advice was sought for by businessmen and public officials in Genoa and elsewhere. We may also note that in 1259, when Perugia tried to follow the examples of Genoa and Florence in striking gold coins, the highest municipal official (the captain of the people) in Perugia was Stefano Leccacorvo, a close relative of Guglielmo.

Whether or not Guglielmo Leccacorvo and his bank had a prominent part in the new initiative, the adoption of a gold coinage in Genoa, 1252, was clearly not a political but an economic move. Had it been regarded as a significant political event, the Genoese Annals would hardly have recorded it with a bare minimum of words, without any comment on the background of the reform and the meaning of the new coins. Bankers were officially entrusted by the Genoese commune with supervision and control of the currency; bankers were the first to feel the need for additional means of payment in periods of economic expansion; bankers were wont to promote the minting of such coins as they wanted in such mints as they could spur to action; bankers must have been the proponents of the gold genoins of 1252. Thus, in the short range of the Genoese business cycle as well as in the long span of the general secular trend, the return to gold appears to have been aimed at relieving the strain which economic growth placed on currency.

V

We still have to explain why relief was sought in gold rather than in silver, billon, or paper money. Perhaps one might contend that all solutions were simultaneously tried. To be sure, government notes on paper were unthinkable without the backing of a strong central government, such as existed in China at that time. But the boom of contracts of exchange and bank transfers between 1248 and 1255 may conceivably be regarded as a step in the same direction as true paper money, all to the profit of bankers and exchange dealers who created credit and kept it rapidly moving. Moreover, a chronicler informs us that in December 1255 'merchants of Tuscany and Lombardy had coins struck on the land of the marquesses Del Carretto and Del Bosco [near Genoa] ...and these coins, called *caratini*, caused great damage to the Lombards'. This can only mean that international merchants promoted a new issue of billon coins to relieve the shortage of small change. The coins harmed those who accepted them at a higher face value than the alloy would have warranted; this made the issue all the more profitable for the entrepreneurs.

In the land of the Fieschi marquesses, which also was near Genoa, Leccacorvo and his associates tried in 1253 to issue 'good and just' silver groats to supplement those of Genoa, as we have already seen. These were to be 'honest' coins, with the same standard as was regarded as fair in Genoa; yet the promoters looked forward to a reward high enough to pay the mint lords either a hundred pounds or 'one-fourth of the entire profit and gain' that the coinage would yield.

These few examples show that resourceful businessmen could easily conjure up fresh means of payment without abandoning the traditional ways, and without neglecting their personal profit. What hope for profit may have spurred some of them to experiment with unfamiliar coins of pure gold? Of course, there was trade with the Muslim and Byzantine countries, Sicily, and Spain, where gold was traditional; but foreign silver was far from unwelcome there, and local gold coins more often than not were alloyed. Adoption of 24 carat gold, on the other hand, ruled out the possibility of gaining through skilful manipulations of the alloy. Should we believe, then, that the promoters of the genoins merely wanted to endow the market with a reliable coinage, and sought for no reward other than the invisible dividends of visible integrity? Inasmuch as confidence is a solid foundation for business, the advantages of an unimpeachable money may have seemed worth a try. Before we extol the *bona fides* of the Genoese businessmen, however, we ought to take a closer look at two variables which may have made a shift from silver to gold lucrative: the relation between the supply and demand of the two metals, and the ratio between the values of silver and gold.

We cannot be too precise in regard to supply, since statistics, as usual, are lacking. But it is clear that opportunities for continuing expansion were more limited in silver than in gold mining. Silver had been mined in various European regions throughout the early Middle Ages; the opening of the Goslar mines had been one of the earliest signs of the long trend of growth in the tenth century; Freiburg, probably the richest source, had been developed in the twelfth century. The thirteenth was marked by intensive exploitation of the old mines but not blessed by important new discoveries; and there were symptoms of increasing difficulties in securing the larger amounts demanded by the growing hunger for silver. In Italy the inferior mines of Tuscany and Sardinia were tapped, and water-driven hammers and bellows were introduced to exploit the poorer ores of Trentino; in Germany Goslar had passed its peak and Freiburg was nearing exhaustion. By the middle of the fourteenth century the mining industry was almost everywhere plunged into a serious depression, not to be overcome until improved technology found ways to cope with underground waters. Little help could be expected from non-European sources, for the great age of 'silver rush' in the Islamic territory had been around the ninth century, and China also had made its greatest discoveries at an earlier period. De-hoarding, too, had been carried out for such a long time that very few idle stocks remained; for every call for liquidity in the past had brought stored silver back to the mint.

Gold mining, on the contrary, in Europe did not come of age before the early thirteenth century, when Hungary, Bohemia, and Silesia simultaneously developed their resources. Around 1252 their combined annual production may still have been less than two hundred pounds, but Bohemia almost quintupled its output by the end of the century, and the other two countries followed suit. All this was a notable addition to the meagre crop of the familiar rivers and mountains farther west. Nevertheless, Europe continued to rely chiefly on imported gold. Senegal was the medieval Eldorado; the soaring of its production between the twelfth and the fourteenth centuries amply made up for the decline of the formerly famous Nubian mines. Ever since the late twelfth century, a favourable balance of trade with North Africa enabled the Genoese and other Italian merchants to import substantial amounts of Senegalese ('Paleola') gold. By the mid-thirteenth century, they were in a position to supply the English treasury with it, and to have it regularly listed in the bulletins of prices which Sienese merchants sent to their home offices from the Champagne fairs. Islamic and Byzantine gold coins, too, flowed to Europe as the balance of trade with the Levant gradually changed from unfavourable to favourable: we have seen that Genoese records indicate that the scales were tipped around 1250. Again, China itself at that period complained of a drain of uncoined gold through foreign trade, which may ultimately have carried some of the metal to Western Europe; for gold travels faster and farther than most other goods. Lastly, de-hoarding of gold up to the thirteenth century had been less thorough than that of silver. Because gold was more precious and was not ordinarily minted, it was regarded as more suitable for storing wealth. It was still possible to scrape the bottom of the barrel.

If the supply of silver tended to lose its elasticity while that of gold tended to grow, the demand for monetary purposes before 1252 followed the opposite course. Silver coinage, more or less alloyed, had to bear the full weight of the Commercial Revolution of the West, which reached its zenith in the thirteenth century. Even in the countries with a gold standard its role had never been negligible; in some of them it became leading by 1252. The Latin Empire of Constantinople broke with the proud tradition of the gold *besant* and was content with silver coins. The Greek emperors, exiled in Nicaea, endeavoured to uphold the tradition, but had to limit the output and debase the alloy. Moreover, it seems that Ferdinand III of Castile (1217–52) temporarily discontinued or, at least, curtailed the minting of gold in his kingdom.[1] At the same period it is reported that gold coins became very scarce in the Egyptian internal market, though good *dinars* continued to be struck for the needs of international trade. Thus, by 1252, the only mints where gold seems to have fully held its own were those of Sicily and North-west Africa.

The changed relations of the demand and supply of the two precious metals must have lowered the ratio between the values of silver and gold. The evidence has never been systematically gathered and analysed, but it exists virtually everywhere. Some of it is indirect, yet clear enough once one looks at it closely: the fact that first the Almohads of Morocco (whose states bordered on Senegal), then the Ayyubids of Egypt and (after 1228) the Hafsids of Tunisia, then (in 1231) Frederic II of Sicily, and lastly (after 1252) Alfons X of Castile increased the gold content of their basic coins looks like an attempt at offsetting the diminished purchasing power of the metal by raising the weight of the coin. The facts are few and perhaps too far between and ought to be checked. I do not know on what grounds a distinguished scholar states that the silver to gold ratio in China fell from 12·1 to one in 1209 to 7·6 to one in 1282, but I am inclined to take his word since I lack the linguistic equipment and historical background to verify it by reference to the sources. Some evidence is in the nature of gossip, but it is gossip by people who ought to have known while the representatives of the London burghers complained to Henry III in 1257 that uncoined gold, which used to be worth ten silver marks, had fallen to nine or even eight marks.

Italian data are the most important for our purpose. There is not enough of these to draw even the roughest diagram, but the general pattern is unmistakable. In the early twelfth century the silver to gold ratio was between eleven and ten to one. It fell slightly below ten to one in the second half of the century. It slipped further to little above nine to one in the early thirteenth century. It was reckoned at approximately 8·16 to one in a Genoese contract of March 1253. This, to my knowledge, is the lowest ratio ever recorded in the extant documents of medieval Italy; but it may be a trifle higher than the ratio of 1252, for the minting of genoins and florins probably braked at once the decadence of gold. In the years that followed, gold rebounded quickly: by 1258, the gold florin (equal to the quadruple genoin) was accepted in Genoa for more than eleven Genoese silver shillings of account (equal to more than twenty-two silver groats) instead of ten shillings (or twenty groats) as originally planned. By the early fourteenth century, gold had recovered all the ground lost; the ratio was once again eleven to one.

Significantly, the contract of March 1253, which quotes the lowest ratio of all, was made by Guglielmo Leccacorvo and another banker, with gold coins entrusted to them by the Fieschi family. We could not have it on better authority that the free market ratio in 1252 cannot have been higher than 8·16 to one. But a comparison of the silver content of the groat of 1252 with the gold content of the quadruple genoin or florin—all of these coins are available in numismatic collections and have been weighed and assayed—indicates a higher official ratio: approximately 8·45 to one. Evidently the authors of the reform, among whom Leccacorvo and the Fieschi were paramount, deliberately overvalued gold, in order to leave a margin of profit to those who converted uncoined metal into coins. It is true that Genoa, in its hostility to bimetallism, did not even try to force the public to accept a quadruple genoin in exchange for twenty silver groats; but the difference between the free market ratio and the officially suggested ratio was small enough for the latter to be unquestioningly accepted by all but those who knew the very latest listing of gold in the free market. On the other hand, the authors of the reform knew that their moderate overvaluation of gold would give the genoin the standard with the many advantages we have pointed out at the beginning. It fitted snugly into the Genoese system of weights, it complied with the basic standards of Sicily and Syria, and it was practically exchangeable for an exact number of Genoese or Tuscan silver groats.

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[1] I am trying to reconcile, so far as Castile is concerned, the partly irreconcilable statements of N. Sentenach, 'El maravedí: su grandeza y decadencia'; 'El escudo de España', *Revista de Archivos, Bibliotecas y Museos*, XII (1905); XXI (1909), and of F. Mateu y Llopis, *La moneda española* (Barcelona, 1945), pp. 167 *et seq.* A final assessment of the new elements brought up by the latter cannot be made until they are developed more fully in the work he is preparing. So far as the published evidence goes, one would accept his assertion that the *dobla* was first struck by Alfonso X and not Alfonso XI, as was previously believed. But the existence of one extraordinarily large gold coin of Ferdinand III does not seem a sufficient proof that this king was the author of the reform. No other gold coins have been ascribed to him in the extant collections.

If all of this is true, we must admire the ingenuity of the authors of the reform. While endowing the expanding economy of Genoa with a most useful addition to the old system of coins, they opened new channels of profit for any one who had stored gold in his coffers or gained it through trade. If he wanted to hold on to it, he had good reason to hope that the fresh demand of the mint would support its tottering price. If the experience of the past had made him distrustful of the future, he could unload the gold on the mint and obtain a higher price than that of the free market. Further, we may note that while not all the holders of gold had a say in the government of Genoa and in the monetary reform, all those who had a say were holders of gold. If private profit is to be regarded as the most powerful driving force of human action, we may have thus detected the deepest though not the only reason for the reform of 1252: the crumbling price of gold and the desire of the reformers to bank on it.

VI

Perhaps we could rest our case, and explain the contagious character of the Genoese reform of 1252 merely by pointing out that both the prime motor (the decline in the price of gold) and the favourable ground (an expanding economy with a lagging monetary output) existed everywhere. Genoa first broke the antiquated Western European tradition which forbade the striking of gold; the rush of imitators shows that the move was long overdue.

The chain of imitations, too, is easily explained. Florence reacted at once, because it was only a few days distant from Genoa, while Florentine and Genoese banks collaborated in a multitude of business deals, such as the farming of the mint of Cuneo which Guglielmo Leccacorvo shared with a banker of Florence. Moreover, the identity of the Florentine silver groat with the Genoese groat made the reform easy to transplant. Perugia, as we have seen, followed suit in 1259, when its chief executive was Stefano Leccacorvo. No doubt Stefano expected financial support from Guglielmo, his relative, but was disappointed by the latter's failure and death on the same year.

Perugia's own capital was inadequate to the task; the project died in a series of charges and counter-charges between the commune and the mint farmers. Lucca, the greatest financial centre between Genoa and Florence, was thus the third Italian city to strike gold (1273 or earlier).

Italian coins and financiers, however, had already spread their influence in the great Western monarchies where coinage was changed at the will of the king. As early as 1257 Henry III of England issued a gold coin, but committed the mistake of imposing a ten to one ratio between silver and gold. The enterprise was doomed to failure. The same ratio, adopted by Louis IX of France when he issued his own gold coin (around 1266?) was less unrealistic, because the value of gold had risen in the interval. His successors made debasement of coinage a work of art; no matter how overvalued their gold coins were, there always was a chance that a new debasement of silver coins would set the ratio right.

Gradually, the battle for gold coinage was won. In Castile, gold coinage had been traditional until Ferdinand III discontinued the striking. His successor, Alfonso X, introduced a gold coin which was heavier than the older ones and matched almost exactly the dinar of his Moroccan neighbours. His reform, if it can be called a reform, had all the requisites of success. Since within about twenty years gold had won the day in so many important states, it was only a question of time before it ruled the whole of Europe. The last important resistance was overcome in 1284, when Venice issued its first gold ducat.

At this point some one might inquire why, in the following centuries, the fame of this late-comer, the ducat, and that of the florin, which some economists might wish to call a 'drone', eclipsed that of the innovator, the genoin. The answer lies largely in the later economic development of Venice and Florence, which took the lead respectively in Eastern trade and Western finance. But there also were other reasons embedded in Genoese history. Probably the depression of 1255–61, which caused the failure of Guglielmo Leccacorvo and other bankers and business men, induced Genoa temporarily to slacken the minting of gold, thus giving Florence a chance to capture the limelight.[1] A far more damaging step was taken in or around 1292, when the financial strain of the war against Pisa and, perhaps, the desire to readjust the coins to the changed silver to gold ratio, led Genoa to issue genoins of a lower standard (alloy, 23 carats; weight, 2·6 gm. for the quadruple genoin). Pisa was crushed, but the genoin lost its precedence together with its place among the fixed stars of the monetary firmament. It was not enough to restore its original standard after a few years: Genoa's coin came to be known as just another 'florin', like the many upstart coins which had been issued by other states in imitation of the original florin of Florence.

Perhaps it would be fitting to introduce one last element into the argument which hitherto has found no appropriate place in our hunt for the causes of the return to gold: prestige. There is no indication that national pride played any part in the Genoese reform of 1252. Though Calvin had not yet clothed the calling of business with divine investiture, most Italian communes in the Middle Ages were managed like business enterprises, and Genoa was one of the most consistent in this practice. The desire to uphold and enhance the prestige of the state, however, was sure to affect the monetary policies of most monarchs and cannot be ruled out *a priori* even from the motivations of an Italian commune.

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[1] I say 'slacken' and not 'discontinue', for the documents of 1259, which I have mentioned above (section II), indicate that the minting continued. It is worth recalling that Florence, too, must have had some difficulty in the beginning, if we may believe the statement of Paolino di Piero, 'there was virtually nobody who wanted it' (the florin).

Throughout the Middle Ages gold, the king of metals, preserved its symbolical association with the fullness of sovereign power. The early Roman emperors had shared with lower authorities the right to strike silver, but reserved gold for themselves. The Byzantine emperors condescended to treat some foreign rulers as their 'sons' or even their 'brothers', but insisted upon the claim that 'it is not permissible to impress any other mark on gold coins but that of the Emperor of the Romans' (to put it in the words of a twelfth-century chronicler). The Umayyads of Cordoba first struck gold when they first assumed the title of Caliphs, almost 200 years after their secession from the central caliphate. Louis the Pious, the first Carolingian who fully realized the significance of the imperial title, made a short-lived attempt at reversing the policy of his predecessors and resuming, after a long intermission, the striking of gold. Then, for over 400 years, the triumph of the silver standard in the West exiled gold from ordinary circulation but sublimated it as a symbol of majesty—until the boundless ambition and keen sense of publicity of Frederick II, 'Stupor Mundi', recalled the noblest metal to active service and made the augustal a startling advertising medium. With its classical eagle on the reverse and the laureate bust of the emperor on the obverse, the augustal contrasted sharply with the formless appearance of its predecessor, the *tarì*. It also differed from its successor, the neat but unimaginative genoin, in the same way as the pomp of a court differs from the tidiness of an office.

People have always known that good money is a persuasive ambassador. Pliny the Elder already tells us that in the reign of Claudius (41–54) a freedman, driven to Ceylon by a storm, demonstrated to the king of the place the inalterable justice of the Roman empire by showing him the coins he had in his purse: they bore different imperial effigies, but they all had the same weight and alloy. The king was so impressed that he sent off an embassy to negotiate an alliance with Rome. Long after Pliny, Cosmas Indicopleustes reports that shortly before the accession of Justin I (518–27) a Greek merchant proved to another king of Ceylon the superiority of his emperor over the Sasanian autocrat by comparing the shining gold of the Byzantine coinage to the silver of Persian coinage. There are critics who charge Cosmas with plagiarizing Pliny, but it does not seem necessary to add this blotch to the dismal record of a most unattractive writer; the comparison was obvious enough to be made twice in over 400 years. Perhaps I shall escape a seat below that of Cosmas even if I recall that a few years ago, in my presence, a Swiss salesman mortified a panegyrist of Mussolini by balancing on his two palms a Swiss silver franc and an Italian lira of nickel. I suspect neither of them had read Cosmas or Pliny, but the argument was cogent and there was no further discussion.

To the same order of ideas belongs the anecdote which Giovanni Villani, the Florentine chronicler, tells as an illustration of the importance of the florin. The sultan of Tunis, he says, used to believe that Pisa was the head of Tuscany, and granted to the Pisan merchants various commercial privileges. When suddenly he saw a gold florin mingled with silver coins of Pisa, he wanted to know what was the place of origin of the new coin. 'It was made in our district', the Pisans stated, 'by backwoodsmen who are to us what the rustic Berbers are to you.' But the sultan was not fooled. Eventually he came across a Florentine merchant—the same man who later related the incident to Villani—and learned that Florence, a mighty state, had defeated Pisa and was rich enough to strike gold whereas its rival could only afford silver. The sultan hastened to conclude a commercial treaty with Florence.

That Villani or his informer may have embellished the story is of no great concern to us, if we can prove that the intention of Florence was to assert its superiority over Pisa, as the story intimates. And there is evidence to show that this was the case. Under a bilateral agreement made in 1171, when Pisa was approaching its peak while Florence was still a young if promising beginner, the Pisan mint provided *deniers* for both towns, profits being equally shared. Around 1230, however, Florence manifested its independence by issuing its own groats. A new convention between the principal Tuscan communes bound all participants to use a common weight and alloy, but the exterior was differently marked by the image of the special protector of each city, John the Baptist in the case of Florence.[1] In 1252, Florence took the last and most fateful step in emancipation by issuing the gold florin, much to the consternation of the other members of the Tuscan league, who wished to cling to the silver standard. The convention was nevertheless renewed in 1256, though limited to silver coins, but its days were numbered. Siena withdrew in 1266 after trying vainly to bring Florence back to conformity, Lucca jumped on the band-wagon and struck gold coins of the same standard as the florin (by 1273), and Florence itself in 1278 denounced a pact which had become a brake to its irrepressible growth. It had waited much less time to attack Pisa, its senior partner in the earlier league, who had become the enemy and the major bar to its expansion towards the sea. In 1256 a Florentine army broke into Pisan territory and proclaimed its triumph by striking there a large number of special gold florins, where John the Baptist was portrayed trampling upon a trefoil, the heraldic symbol of the Pisan commune.

Some of these coins have come down to us. They bear witness that when the Genoese reform of 1252 was transplanted in Florence, it ceased to be solely a profitable business operation and became tinged with municipal pride. Pride alone, regardless of economic opportunity, prodded the Florentines to put out supplementary florins, on the first year of the depression that apparently slowed down the output of the genoins. Unexpectedly, it brought economic dividends: the florin had held fast when the genoin seemed to falter, and was ready to ride on the crest of the following business tide.

Political ambitions, rather than economic considerations, must have prompted Henry III in 1257 to issue a 'gold penny', which weighed twice as much as the silver penny or *denier* and was to be exchanged for twenty silver *deniers*. The latter had not been debased as much as the continental *deniers*, so that England had not even felt the need for the introduction of a silver groat. No bankers or merchants are known to have advocated the striking of gold. Quite to the contrary, the mayor and aldermen of London advised the king that gold coins would be harmful to the poor, whose entire property often was not worth a single gold piece, and to the rich, whose stored uncoined gold would be depreciated if gold coins were dropped into the hands of common people. It may be puzzling or distressing to hear such pronouncements by the official representatives of the trading bourgeoisie—were they fools? were they liars?—but it is clear that Henry's gold penny was not the brain-child of the business circles. The king dreamed to step into the shoes of Frederic II—in Sicily through his son, in Germany through his brother—and obviously wanted to put out a coin that could compare with the augustal. We know that his treasury stocked augustals and passed florins by, in contrast with the opposite preference displayed by most business men. Had the royal dreamer adopted a more realistic gold-to-silver ratio than ten to one, the gold penny might have asserted itself in spite of the gloomy forecasts and of the lack of economic pressure. It failed; but it is fair to add that a few years later the great realist that was Edward I was no more successful in his attempt at introducing a silver groat. The steady but slow growth of the country did not call for monetary reforms, but only for a slow and steady increase in the supply of the customary coinage.

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[1] These developments have been recently studied in an excellent paper by D. Herlihy, 'Pisan Coinage and the Monetary Development of Tuscany, 1150–1250', *American Numismatic Society, Museum Notes*, VI (1954), 143 *et seq.* Herlihy stresses that 'the earliest mention (of Florentine petty deniers) apparently does not occur until 1257'; perhaps we may tentatively bring the date back to 1252, and suggest that the convention of 1171 remained in force up to that year in regard to petty deniers. In 1252 Florence may have decided to strike its own petty deniers as well as the gold florin, thus completing its emancipation from Pisa.

We know nothing whatever of the public reaction to the monetary reforms of Alfonso X in Castile and Louis IX in France, but both the general economic conditions and the temper of the rulers were not much unlike those of England. Though Alfonso X towered above Henry III as an intellectual figure, he was equally addicted to impracticable political dreams. Curiously, his ambitions also centred on Sicily and the imperial crown, and his stormy career often ran parallel to that of Henry. But the gold *dobla* was successful—not because Castilian economy was more vigorous and progressive than English economy, but because the coin fitted the local tradition and resembled the standard of the southern neighbours of Castile. Still, a touch of the royal megalomania is visible in a slight modification of the weight that made the coin adaptable to the ponderal system of Germany (that country might eventually accept Alfonso's imperial rule!), and still more in the adoption of a larger unit of coinage at the very time when the treasury was drained to pay for Alfonso's dreams.

As for Louis IX, it is hard to disentangle the realist from the dreamer in his complex personality. He was at the same time a paragon of Christian humility and a model of royal hauteur. His monetary policy, however, was inflexible: he neglected no opportunity to assert his sovereign rights to the exclusion of feudal and foreign encroachments. The striking of a gold coin was the most likely move to close a gap through which the florin or another alien money might penetrate his preserve. Louis' gold *écu*, and the silver groat which he issued at the same time, made up an independent bimetallic system with standards unrelated to those of all foreign countries. On the other hand, their exterior appearance was a belated reflection of the Crusade, ever present in the king's heart. The general plan of the reverse, two circles of legend with a cross in the centre, was identical with the reverse of the *Agnus Dei* coin which the king had promoted in 1251 in the Christian mints of Palestine. The legend itself was the same—full of Christian humility, yet replete of royal hauteur: CHRISTUS VINCIT, CHRISTUS REGNAT, CHRISTUS IMPERAT, as in the ritual acclamation of the French kings.

I believe no further comment is necessary to stress that if economic reasons planted the seed of the return to gold, political ambitions helped the plant to grow.

VII

For the benefit of the more impatient readers it might be advisable to summarize my tentative conclusions. While the secular economic growth of Western Europe from the mid-tenth to the mid-fourteenth century sustained the demand for additional means of payment, it did not require that the demand be met by resuming the minting of gold. Gold minting was first resumed in Genoa, 1252, owing to a combination of favourable circumstances: the ratio between the price of gold and that of silver fell to its lowest medieval level, a major business cycle reached the peak of prosperity, and opportunities for investment of Genoese gold coins in certain foreign countries took a most auspicious turn. The bankers and administrators who promoted the minting of gold contrived a standard of weight and alloy which attained several goals: it fitted into the Genoese ponderal system, it coincided with the Sicilian money of account and resembled the latest Palestinian coin, and it suggested a convenient relation to the pre-existing silver coinage of Genoa. The Genoese example was an encouragement to other states where the circumstances were equally favourable, or where the government hoped to build up its prestige by minting the noblest metal. The wall of tradition which supported the silver standard rapidly crumbled down. Eventually, gold conquered all of Europe, because the secular trend sustained the demand for additional means of payment, and gold coins were indeed an important addition.

The latter generalization coincides with the conclusion reached by Marc Bloch more than twenty years ago. The remarks that precede it seem to indicate that, although the intuition of a great master may perceive the point of arrival without following the meandering route that leads to it, a broad generalization is the sum total of an aggregate of small qualifications.

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A WILTSHIRE FAMILY OF CLOTHIERS: GEORGE AND HESTER WANSEY, 1683–1714

By J. de L. MANN

THE Wansey family, some of whose remaining books and papers have furnished the material for this article,[1] was established in Warminster from the middle of the sixteenth century, if not earlier.[2] The George Wansey whose books begin the series was the son of another George, who is described in the family pedigree as a maltster and white clothier. He was the youngest of six brothers most of whom had fought in the Civil War on the Parliamentary side[3] and he himself had escaped from a Bristol prison. He and his son became Quakers when Penn preached in Warminster; but the younger George, at least, was not a typical Quaker,[4] and the next generation seems to have left the Society. In the eighteenth century the family were members and trustees of the chapel called the Old Meeting in Warminster.

Three books belonging to the second George have been preserved. Two, which may owe their survival to the fact that they contain a diary running, with some gaps, from 1683 to 1707, are described as ledgers. The business section of them covers the period from 1683 to 1701 and contains accounts of wool bought in Warminster, Salisbury and London, and of soap, oil and dyestuffs bought in London and Bristol. There are also some notes, tantalizingly brief and unsatisfactory, of dealings with London factors, with a few cloth patterns, and household and miscellaneous accounts. The third book runs from the middle of 1701 to 1714 and is a day book in which transactions were entered as they occurred. It contains accounts for burling, fulling and drawing, payments for cards bought and sold, building accounts and one or two calculations of profit on agricultural operations. Payments for oil and dyestuffs are occasionally entered, but purchases of wool very seldom.

This second George married, apparently in 1680 when he was twenty-nine, Joyce Short, the daughter of a clothier, with whom he received a dowry of £200. When her father died two years later he received another £100 as a legacy and divided the rest of the stock in even thirds with the widow and unmarried daughter. Altogether his wife brought him £575. She died in 1686 and in the following year he married the daughter of another clothier, Hester French. Of her, her grandson recorded that she was

> bred up under (her father) to the clothing trade and with (her husband) carried on a large business sometimes making ten cloths a week; the business

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[1] I am indebted to the Wansey family and especially to the Rev. John and the Rev. Peter Wansey for allowing me to see these and other documents relating to the family. The greater part of them have now been deposited on loan in the Wiltshire Record Office at County Hall, Trowbridge.

[2] J. J. Daniell, *History of Warminster* (1879), pp. 179, 250–1.

[3] For one brother, Henry Wansey, *Ludlow's Memoirs, 1625–72* (ed. C. H. Firth), I, 91, n. 2.

[4] The second George and his wife did not refuse to pay tithe and the few letters which have survived show that although George used the Quaker form of address in private he did not do so in his business correspondence.

resting chiefly upon her, and after his death in 1707 she carried on a trade for herself till the spring of 1739, maintaining the character of a fair and just trader and a good mistress to her servants, having been conversant in trade above 60 years.[1]

The main business of most Wiltshire clothiers at this time was the manufacture of the finer qualities of cloth, generally called Spanish cloth whether or not it contained Spanish wool. Some was exported, but the larger part was consumed at home. The white cloth trade, which had produced undressed cloth for export, declined rapidly after the Restoration; and although the elder George is described as a white clothier, it is clear from references in his son's books that he was making coloured cloth towards the end of his life. Wiltshire coloured cloth was medley cloth made of dyed wool; if piece-dyed cloth was required (and many colours could only be obtained in this way), the cloth was sold white and dyed elsewhere. Wansey did not generally make the finest quality, which, by the end of the century, was often made entirely of Spanish wool; but he did use a small quantity of this wool to mix with English for his finer varieties. The greater part of his English wool he bought at the weekly market in Warminster. Scarcely any week passed without some purchase being made from one or more of the many dealers whose names appear regularly during the whole eighteen years of the record. This wool is frequently described as coming from neighbouring places in Wiltshire. Sussex wool is also mentioned, but there is no difference in price range. The wool had already been sorted and several different prices might be paid on the same day, even for wool designated as 'fine'. In fact there is no trace of a standardized system of grading for fine wool. A contemporary pamphlet suggests that a clip might be sorted into three or four sorts,[2] and besides the epithet 'fine' (which occurs regularly in the early years but is often omitted in the later ones where the price would lead one to expect it) Wansey does mention 'second fine as they call it', and rather more often 'seconds' and 'ordinary'. The latter he did not in general make use of. He also bought fleece wool, but not in large quantities. In addition to these purchases of sorted wool, he would sometimes buy the clip of a local farmer, occasionally with the proviso 'to return the worst'. He also bought packs of wool in London and Salisbury and bags of Spanish wool in London. It is probable that the packs of English wool were sorted, but one of Hereford wool bought at Bristol fair in 1706 for £12. 10*s*.[3] yielded four qualities ranging from 6*d*. to 1*s*. 5*d*. per pound.

The fall of wool prices was a common complaint in the 1670's and 1680's[4] and the first purchases entered were made in June 1683 at 8*d*. and 9*d*. a pound in Salisbury market. But from July 1683 onwards the bulk of Wansey's wool was fine wool at prices ranging from 11*d*. to 1*s*. 2*d*. a pound in the 1680's and from 11*d*. to 1*s*. 3½*d*. in the early 1690's. Between these ranges by far the most common prices were from 1*s*. to 1*s*. 1*d*. During the financial troubles which accompanied the recoinage they rose much higher. In the winter of 1695–6 they sometimes reached 1*s*. 8*d*. and even after the monetary position was restored they remained between 1*s.* and 1*s.* 5*d.* until the spring of 1701.[1] There are no regular entries after that date, but from the few casual ones in the day book it looks as if, by 1706, there had been a fall to the level prevailing in the early 1690's. During the whole period there are a few entries at prices above the general range; thus 1*s.* 3*d.* a pound was paid for some 'very fine' wool in February 1689 (though it is noted as much too dear) and 1*s.* 4*d.* on one occasion in each of the years 1692 and 1694, the latter being for 'fine Cole wool' to mix with Spanish. In February 1696, when prices were very high, some 'Heytesbury wool' was 1*s.* 10*d.* and some of unspecified provenance 2*s.* In the following year Wansey paid 1*s.* 9½*d.* for 'superfine Sussex' and in 1698 some wool both from Shropshire and from Sussex was 1*s.* 8*d.* But it is difficult, except in the years 1696–1701, to be certain whether the slight rise observable in the 1690's was due to a general rise in the price level or to the fact that Wansey was buying finer wool as his business increased; in fact the table below suggests that the latter was the case since seconds and fell wool seem to have been exceptionally cheap in 1690 and 1691, just when he began to pay rather higher prices for fine wool. This table gives the prices mentioned on a few occasions when wool is entered as suitable for a certain type of cloth, on the presumption that this wool kept a constant standard. There have also been added prices for unsorted wool and those paid for seconds and fell wool, though none of these is a very trustworthy guide. The unit, when the price is not quoted by the pound, is the 'weight' of 30 lb., which replaced the tod in the south-western counties.[2] The prices given for unsorted wool suggest (so far as one can judge from the price of one species) that Davenant may have been right in stating the average price of wool to the farmer at 1*s.* per pound in 1697,[3] but that it had only recently reached that level though it kept it for the following two or three years. One point, which does not emerge from the table but is evident from a scrutiny of the accounts as a whole, is that there was no marked rise or fall when the new clip became available each year about the middle of June, and it looks as if the quantity of wool must have remained fairly constant.[4]

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[1] From the 'Family Book' of the third George Wansey, in the possession of the Rev. John Wansey.

[2] *Reasons for the Bill for Improvement of the Woollen Manufactures and preventing the Export of Wool* (1689), p. 1.

[3] This is the only pack mentioned as having been bought at Bristol.

[4] Cf. J. Smith, *Chronicon Rusticum Commerciale or Memoirs of Wool* (1747), II, 508, and also the pamphlets quoted by him, I, 377 *et seq*.

Wansey's expenditure on wool rose steadily from under £400 in 1683/4 to over £1,400 in 1697/8 and the high level of this year was not only due to the high price, for it was also the year in which he bought the most wool, nearly 150 cwt. of English and over 30 cwt. of Spanish.[5] In the two following years his purchases dropped to about 140 cwt. a year of English and he bought far less Spanish, probably owing to its high price.

It seems probable that Wansey did not dress his own cloth to begin with, for in 1683 he bought the contents of Richard Sledge's shear shop and added more tools in order to do so. This involved a capital expenditure of just under £100. Shears were valued according to weight and a heavy one of 32 lb. cost 30*s.*, but the most expensive part of the equipment was the cloth press which cost at least £15. 10*s.* In view of the large number of independent master clothworkers in Wiltshire at this time and throughout the eighteenth century, these figures are interesting as showing the capital necessary to set up a fairly large shear shop. There are a number of recipes for dressing cloth of different qualities. The cheapest (yellow mark) was reckoned to take twenty-nine hours work and cost, with brushing and pressing, 11*s.* 7*d.* The dearest (gold mark) took fifty-one hours, including brushing and pressing, and cost 18*s.* 2*d.*[1] The difference consisted in the number of times the surface was raised and cut, but even the cheapest variety was cut four times on the face and once on the back. Later, the shop seems to have been given up, or possibly let to someone who finished cloth at so much per yard; such prices are quoted in 1707 and

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[1] This is contrary to Smith's conclusion that wool fell after the Peace of Ryswick (*op. cit.* II, 340–1), but quite consonant with the hypothesis that demand increased as soon as the war was over. See *infra* p. 248.

[2] Cf. J. Houghton, *A Collection for the Improvement of Husbandry and Trade*, no. 46 (1693).

[3] W. Davenant, *Works* (ed. Sir C. Whitworth, 1771), II, 146; also J. Smith, *loc. cit.*

[4] There is nothing in Wansey's diary or accounts to support Smith's conjecture that the bad weather of 1692 caused a rot of sheep, *op. cit.* I, 389 n.

[5] The bags of Spanish wool never contained the 200 lb. credited to them in the Custom House Accounts. They averaged about 190 lb.

Wool Prices, 1683 to 1706

Date 1 July–30 June except where stated	Wool for certain types of cloth					
	Orange mark	White mark	Green mark	Unsorted	Second	Fell wool
June 1683	—	—	—	19*s.* 6*d.* to 20*s.* 6*d.* per wt.	—	9*d.*
1684–5	—	—	—	—	9¼*d.* to 10*d.*	9½*d.* to 10½*d.*
1685–6	—	—	—	—	9*d.* to 1*s.* 0¼*d.*	
1686–7	—	—	—	—	9¼*d.*	—
1687–8	—	—	—	22*s.* per wt., 10*d.* per lb.	9½*d.*	—
Aug. 1688	—	1*s.*	—	—	—	—
1689–90	11*d.*	—	—	—	7¾*d.* to 8¾*d.*	8*d.*
1690–1	—	—	1*s.* 1½*d.*	—	8*d.* and 8½*d.*	8¼ to 8½*d.*
1691–2	—	1*s.* 0¼*d.*	1*s.* 2*d.*	—	—	9*d.*
1692–3	—	1*s.* 0½*d.*	1*s.* 0½*d.* (*a*)	—	—	—
1693–4	—	1*s.* and 1*s.* 1*d.* (*b*)	1*s.* 2*d.*	—	—	10*d.* and 11
1694–5	1*s.*	1*s.* 0¾*d.*	1*s.* 1½*d.*	11*d.*	—	11*d.*
Jan. 1696	—	—	—	—	—	28*s.* qr.
May 1696	—	—	—	—	—	1*s.* 6*d.* (*c*)
July 1696	—	—	—	10½*d.*	—	11½*d.*
Dec. 1696	—	—	—	1*s.*		—
1697, 1st half	—	—	—	—	11*d.* to 1*s.*	11*d.*
1697 2nd half	—	—		27*s.* wt., 1*s.* lb.		26*s.* and 30*s* per wt.
July 1698	—	—		31*s.* 9½*d.* per wt. at Barford Fair	—	—
1699, first half	—	—	—	31*s.* 6*d.* per wt. 1*s.* 1*d.* per lb. } to 11½*d.*	—	—
July 1699	—	—	—	1*s.*	—	—
Feb. 1702	—	—	1*s.* 3*d.*	—	—	—
Oct. 1703	11*d.*	1*s.*	1*s.* 2*d.*	8*d.* } (*d*)	—	—
June 1706	10*d.*	1*s.* 1*d.*	—	11½*d.* } (*d*)		
Sept. 1706	11*d.*	1*s.* 2*d.*		1*s* 0½*d.* (Hereford)		

(*a*) Noted as particularly good wool for the price.
(*b*) An additional 5*s.* was paid on the lot of 5 wt.
(*c*) This seems a very late date for the high price. Wansey notes in his diary that before the fall of guine fell wool fetched 1*s.* 6*d.*, but this ended by the middle of March and by May he said it was only 9*d.*
(*d*) These prices are probably not comparable.

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[1] There is no indication of the length of the cloths to which these prices refer. That of the few cloths mentioned varies from twenty to twenty-seven yards. For the varying lengths of medleys see *Hist. MSS. Com.* XIV (H. of L. MSS.), 33.

range from 6*d.* per yard for yellow mark to 1*s.* for scarlet (gold mark is not mentioned).

The burling,[1] fulling and drawing[2] were also put out, always to the same people. It is impossible to tell how far they were independent masters taking in work from other people beside Wansey, though it would be in keeping with other instances in Wiltshire if the fuller, at least, did so. William Slade, who did the burling at 3*s.* per cloth, and William Russ, who did the drawing at 8*d.*, lived in houses belonging to Wansey and the rent (£4 per annum for Slade, £3. 15*s.* for Russ) was deducted from their accounts. Russ could sign his name but Slade made his mark. Their rents were among the highest received by Wansey who owned house property let at varying amounts from £1 to £4 a year. There is no mention of rent for the fulling mill and it is improbable that he either owned or leased it. He supplied his own soap to John Tanner the mill-man allowing 4 lb. per cloth, though they often needed more especially when coloured. The price of fulling from 1701 to 1705 was £2. 10*s.* per twenty-one cloths, but after John's death in that year, his widow and her son Edward charged 2*s.* 6*d.* per cloth.[3]

Unfortunately we have not the same detail for the operations of spinning and weaving. Most of Wansey's cloth seems to have been priced at 9*s.* to 10*s.* per yard,[4] but in the 1690's he also made druggets, a narrow stuff with a worsted warp which was milled and finished like cloth.[5] This involved him in buying worsted, which in 1695 cost 3*s.* 4*d.* a pound. Some was bought locally, but some was sent down from London by Thomas Mynne, the factor for whom the druggets were made. In 1696, 14*s.* a piece was paid to Mathias Pery for weaving druggets of thirty-eight to thirty-nine yards as they came from the loom. The shortest time taken was three and a half weeks,[6] giving a weekly wage of 4*s.*, but one cannot assume that the weaver did nothing else during that time. For weaving linsey-woolsey out of odds and ends of yarn left over when a cloth had been woven Pery received 8*d.* a yard from 1701 onwards, but it is evident that this was woven on the broad loom, involving two weavers, and he may have provided the warp himself[7] as he did in 1712 when he found worsted for the warp of a serge. In this case he received 27*s.* 6*d.* for twenty-five yards of double serge, 49½ inches wide, but it took him six weeks to weave and the price included the warp. The whole Pery family were constantly doing odd jobs for Wansey, and Mathias got him to agree, in 1705, to let him have 'the house he now lives in at 56*s.* a year, not to put him out if he (Wansey) could have £3 of another'. It looks as if he were one of those semi-independent weavers who might take employment from a clothier if it were available or weave on his own account if it were not.

Only once is there any mention of weaving cloth. In 1714, 16*s.* was paid for weaving seventeen yards of fine narrow cloth out of yarn left over from another cloth. If we compare this payment of nearly 1*s.* a yard with the price of 1*s.* 3*d.* per yard for weaving the finest broadcloth, involving two weavers, which had been the standard wage for many years previous to 1803,[1] we can gain some idea of the extent of the fall in weaving prices in the eighteenth century.[2] No payments for spinning are given except for list. This was usually bought in the market at 7½*d.* to 9½*d.* per pound, but when the wool was given out to spin the spinner was paid 4*d.* per pound. Wansey supplied his fine spinners with cards which were bought from several dealers in various qualities from 21*s.* to 26*s.* a dozen. Larger cards for scribbling frames were 4*s.* 9*d.* a pair in 1704, but they fell to 4*s.* 2*d.* or 4*s.* 4*d.* from 1709 onwards. When too much worn to be suitable for carding fine wool the cards were resold to itinerant dealers who furbished them up and resold them to spinners of coarser wool. This practice was the subject of a controversy between clothiers and cardmakers in 1710 when it was said to be a recent innovation;[3] but Wansey's books show that it was going on in 1701 when the price received was 2*s.* 7*d.* a dozen. After falling to 2*s.* 3*d.* in 1706 it settled down at 3*s.* two years later, which may indicate that the practice was becoming established. If so, the timing of the cardmakers' protest can be understood.

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[1] Burling is usually the process of taking out knots after weaving, but in view of the high price it would seem that in this case it included some other process, possibly mending the cloth after fulling.

[2] Drawing is the process of looking over the cloth for holes made by fulling or shearing and sewing them up with fine silk, which Wansey supplied.

[3] The same was paid early in the century, P.R.O. S.P. 14/80/16.

[4] These are the most frequently mentioned prices, but cloth at 8*s.* 6*d.*, fine black cloth at 12*s.* and superfine thin black at 16*s.* are each mentioned once.

[5] See *Reasons for the Bill* (1689), p. 1. Wansey charged them to the factor in 1693 at 3*s.* a yard for a white drugget, rising to 3*s.* 6*d.* and 3*s.* 8*d.* in the dear year of 1697.

[6] In one case the piece was only returned after five weeks.

[7] The usual entry is 'Dd × lbs. of drums (thrums) and scantlets' and the chain is never mentioned. This linsey was sold to employees and others at 1*s.* 6*d.* a yard.

Wansey possessed a dyehouse of his own with a furnace for which a sack of coal at 2*s.* was expressly purchased in 1708. This was possibly coal of a high quality, for kitchen coal usually cost from 1*s.* to 1*s.* 3*d.* per sack, though sacks at 1*s.* 6*d.* and 1*s.* 8*d.* are mentioned. Presumably it came from the Somerset coalfield only some fifteen miles away. Alum, dyestuffs and mordants, including madder, logwood, redwood, brazill, fustick, saunders, copperas, Aleppo gauls, and argol[4] were bought in London. They were sometimes ordered to be sent to Richard Randall or Samuel Adlam and accounted for with them; whether some dyeing was put out to them or whether they were merely ordering their materials through Wansey is not clear. There is only one mention of woad, in 1714, when wool was sent to be woaded as a preparation for further dyeing; but this operation, owing to the skill required in using woad,[5] was generally carried out by specialized dyers. The other main necessities, soap and oil, were bought in London and Bristol. The oil, when specified, was Seville oil; the soap of various sorts, Joppa, Marseilles or Alicante.

There is a certain interest in comparing such figures as can be gained from these accounts with Sir Matthew Hale's much-quoted estimate of the cost of making a piece of medley thirty-two yards long from coarse Gloucestershire wool.[6] Unfortunately, it is uncertain to what year this estimate refers, though it was written during a depression and must antedate Hale's death in 1676. The cloth is said to have sold at £12 to £13 per piece which would mean a wholesale price of 7*s.* 6*d.* to 8*s.* 1½*d.* a yard. No price mentioned in Wansey's books is under 8*s.* 6*d.* a yard and most are 9*s.* or 10*s.*; but these are retail prices at which cloth was sold to neighbours, so that a comparison between Hale's estimate and the cheapest prices paid by Wansey would seem justified, though they are separated by a gap of some twenty-five years. It yields, however, fewer points of similarity than might be expected. The closest correspondence is in shearing and dressing where Hale's estimate works out at about 6¾*d.* a yard while Wansey's price for the cheapest kind of cloth he made was 6*d.* in 1707. Hale's estimate for weaving, spooling and warping gives a price of 8*d.* a yard for the shrunk cloth (which would mean a little over 6*d.* for the length actually woven)[1] while Wansey paid just over 4*d.* for a narrow drugget as it came from the loom and 8*d.* for broad linsey, though this price probably included the linen warp. The latter seems comparable with Hale's price if we remember that linsey was more quickly woven than cloth. The other items show no correspondence. Hale's estimate for milling and burling was 12*s.*, Wansey's minimum was 6*s.* 10*d.*[2] Hale's cost for drawing was 1*s.* 6*d.* whereas Wansey paid 8*d.* In both these cases the uncertainty about the exact processes covered by the terms used makes comparison dangerous.

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[1] *Parl. Reports*, 1802–3, VII, 19, 55.

[2] Cf. *The Miseries of the Miserable*, by a Gentleman of Wilts (1738).

[3] *Bromley's Papers* (Bodleian Lib.) I, 42, 63–7; Cf. *H. of C. Journals*, XVI, 471, 547. 'Gatherers of old cards' are mentioned in 1638, P.R.O. S.P. 408/15.

[4] Argol was used for brightening the colour in certain dyes.

[5] M. Postlethwayt, *Dictionary of Commerce* (1751), s.v. Dyeing.

[6] M. Hale, *Observation touching Provision for the Poor* (published posthumously, 1683), pp. 15–16.

Unlike many other woollen manufacturers, most of the Wiltshire clothiers, working mainly for the home market, were not seriously troubled by the fluctuations which affected some branches of the industry after the Restoration. They took little part in the petitions to Parliament against export of wool or in the long agitation against the Blackwell Hall Factors who were accused of interposing themselves between the clothier and the merchant, imposing such long credit that the smaller clothiers were ruined by it, engrossing Spanish wool and conspiring with broggers to corner the wool of certain counties.[3] Wansey does not mention either the agitation or the Act of 1697 'to restore Blackwell Hall to the Clothiers and for regulating the Factors there';[4] but the background against which it must be viewed can be seen in his books, which well illustrate the rising prices of all imported commodities. He bought his first superfine Spanish wool in 1684 for 2*s.* 1*d.* a pound. From 1690 to the end of 1695 the price ranged from 2*s.* 4*d.* to 2*s.* 8*d.* In May 1696 it was 3*s.*, but that was due to the trouble over the recoinage and later in that year it went down to 2*s.* 8*d.* and 2*s.* 10*d.* In 1699 and 1700, however, in spite of the fact that the country was at peace, superfine was as high as 3*s.* 8*d.* and 3*s.* 9*d.* per pound and even the second quality, refine, was 3*s.* 2*d.* The prices of other imported materials followed much the same course. Oil, which had been £24 to £30 per ton in the mid-1680's began to rise in 1689, stood at £40 in 1692 and at £58 and £64 in October 1695; after that it fell to £38 by May 1697, but had reached £49 again in 1702. Even in 1711 and 1712, when prices are quoted by the gallon, it was just twice as expensive as it had been in 1688. Alicante soap, which stood at 42*s.* per cwt. in 1688, rose to 60*s.* in 1693 and to 80*s.* in May 1696. It dropped a little with the improvement in financial conditions but rose again to 95*s.* in February 1699, and was still 80*s.* in the summer of that year. Finally logwood, for which prices are entered from 1695 to 1700, rose from 30*s.* per cwt. in the former year to 60*s.* in 1697 and to 65*s.* in 1699; and madder from 74*s.* per cwt. in June 1696, to 130*s.* in December 1698. The continued rise in all these imported commodities, which all (except oil) reached their highest prices after the Peace of Ryswick in 1697, may be compared with the similar though much less marked rise in English wool, which, as has been noted earlier, seems to have maintained a higher level between 1696 and 1701 than for a long time before. It suggests that there was a general demand for woollen goods as soon as the war was over,[1] which was sufficient to drive prices even higher than they had been before; for French and Dutch clothiers were no doubt just as anxious as their English counterparts to obtain these materials which were imported by all of them. It is not surprising, however, that in England the high prices led to a renewed outcry against the factors, which resulted in the introduction, in March 1699, of a further bill to restrain them from dealing in wool and dyestuffs; but this never became law, for the session ended before Lords and Commons had composed their differences about it.[2]

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[1] This assumes that the cloth would shrink about as much as the two druggets for which details are given by Wansey (about six and a half yards on thirty-eight). But no account has been taken of the warping which, if done in the clothier's shop, would further reduce the price paid to the weaver.

[2] I.e. burling 3*s.*, fulling 2*s.* 6*d.*, 4 lbs. soap 1*s.* 4*d.*

[3] E. Lipson, *The Economic History of England*, II, 27 *et seq.* See also *The Clothier's Complaint* (1692) and numerous other pamphlets. The agitation came mainly from Gloucestershire.

[4] 8 and 9 Will. III, c. 8.

Not much evidence of the accusations against the factors is to be drawn from Wansey's books except as regards credit, which is dealt with below. What English wool he bought in London was obtained independently of them, but his books do support the charge that Spanish wool had to be bought there even though the Custom House Accounts show that some was imported elsewhere. If it had been available in Bristol it is improbable that Wansey would not sometimes have bought it there, as he did occasionally oil and soap. The apologists for the factors were, however, right in saying that no clothier was tied to one factor,[3] and the allegation that Spanish wool could only be bought through one may not have been true, since, up to 1688, Wansey bought his from 'Joseph Cox, merchant of London'. After 1688, however, Cox disappears from the accounts and much of the Spanish wool came from Paris Slaughter, who appears as a factor in the *Little London Directory* of 1677.[4] Whether Wansey sent him cloth is uncertain, but up to 1700 he went on buying Spanish wool from him or from his man, Richard Harrison, who visited Warminster more than once. In the 1680's he also dealt with Robert Foot and partner[5] (sometimes referred to as 'Cousin Foot'), who seem to have acted as factors and on two occasions also supplied him with wool. In the 1690's he dealt with George Gresham and also made druggets for Thomas Mynne, and he began dealing with Josiah Diston, who is the only factor mentioned after 1701, while he was still buying wool of Gresham. Beside Spanish wool he obtained oil, soap and dyestuffs through his factors (though he often dealt direct for these both in London and Bristol); and they also acted as general agents, sending other commodities for which he asked, such as oranges, sturgeon and tobacco. The latter he sold to his employees and others at 1*s.* to 1*s.* 6*d.* a pound. He frequently noted short weight on all these purchases, but he himself renumbered cloth sent back from London as faulty and sent it up again. Such practices do not seem to have disturbed the general good relations between him and his factors; and with the family of Josiah Diston, who became M.P. for Devizes in 1705, he was on terms of friendship which culminated after his death in the marriage of his son Henry with Diston's orphan cousin, Elizabeth Farmer.

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[1] According to Davenant there had been large exports owing to the debasement of the coinage, but the demand had fallen after its restoration in the latter part of 1697, *op. cit.* I, 95. However, the exports of Spanish cloth from Michaelmas 1698, to Michaelmas 1699 were higher than before the war, and although they fell in the following year (probably owing to the prohibition of bone lace from Flanders), the exports of other sorts of cloth were more than one-third greater than in the previous year. Cf. J. Smith, *op. cit.* 2nd ed. (1756), II, 358.

[2] *H. of C. Journals*, XII, 520, 652, 656.

[3] *The Blackwell Hall Factors' Case* (n.d. prob. 1698).

[4] He is entered as Par. Slater, but cf. 'Slatenford' which was the usual spelling of Slaughterford in the eighteenth century. Another factor whose name appears in this directory, Alderman Henry Cornish, had dealings with Wansey's father-in-law, Lawrence Short.

[5] The partner was William Cray, probably a relation of the Crays who were clothiers at Horningsham and were connected with Wansey's first wife.

The Blackwell Hall Act was an attempt to get behind the factor to the merchant who was the ultimate buyer of the cloth; and it imposed on factors the duty of demanding from his customers notes of hand for all cloth sold and passing them on to the clothiers who could then use them to obtain advances. There is no indication that Wansey's factors paid any attention to this injunction, but in his case there appears to have been no necessity for it. His accounts amply show how complicated was the credit network by which the internal trade of the country was carried on. When he bought oil and soap, especially in the earlier years, either from London or Bristol, he generally paid by sending a bill drawn on his factors or one which had been paid to him by someone else. It was not legal to assign such bills to a third party until 1698,[1] but there is no doubt that they circulated freely well before that time. A typical entry runs as follows:

> May 11, 1686, Left with Arthur Stone a note on Henry Pearson for £83. 12. 0 wch sayd sum A.S. hath Reced so on that note is due to me £50. 17. 8.
> June 28 sent an order to Robt. Foot to Receive the sd. money of Mr. Stone

April 4, 1686 Reced from Arthur Stone 2 pipes of oil comes to	32	14	4	Note above...	83	12	0
June 10, 86 Arthur Stone payd Robt. Foot by my Order	100	0	0	May 11, 96 Left with A.S. a note on Joseph Dunnam	79	10	0
Oct. 2 Drawed a Bill on A.S. to be payd at sight to James Powell	50	0	0	do. Left w. A.S. two notes on John Loyd mercht of London for	102	5	0
Nov. 15 Sent an order to A.S. to pay Robt. Foot's order wch was to be Thos Buckler's order	70	0	0		265	7	0
	252	14	2		252	14	4
Rests due to me from A.S.	£12	13	0		12	13	– (*sic*)

All wch above sums of money mentioned A.S. hath rec'd the last of Joseph Dunnam the 4 Nov. 86.

Sometimes there were disputes, 'Peter Cazalet hath writ me in a sort of passion yt he will pay £100 this week'; but a total loss is never mentioned.

As time went on, Wansey came more and more to dealing almost entirely through his factor. Such an entry as 'Arthur Stone was payd by Geo. Gresham for the oyle on the other side and Brought to Account in my Account dated Oct. 12, 1695' becomes very common, though bills are still drawn on Gresham for some payments. Unfortunately no accounts with Gresham or Diston survive so that it is impossible to tell what length of credit was given. From references in the records of oil and soap purchases it looks as if accounts were settled about three times in every two years.[1] There are a few accounts with Thomas Mynne, but the trade in druggets was only a sideline and Mynne paid nothing for Wansey and only sent him tobacco and an occasional consignment of worsted. Wansey never complained of long credit and, indeed, he seems to have gained by it, since the factor played the part of a banker; but it may well have been a burden to smaller clothiers who could keep less cash by them. Wansey kept substantial sums in the house. In 1701 he had £1,114 in coin disposed in three separate places, and a year later the amount was about the same, having dropped in the meantime to £764.[2] He lent many small sums; very often these were repaid within a month or so without interest, and it was only when repayment was unduly delayed that he seems to have charged it. He constantly exchanged silver for the large quantities of copper brought him by his neighbours. His accounts for burling, fulling and drawing were generally settled half-yearly, but advances were sometimes given and, in the settlement, account was taken of rent due and of tobacco and cloth supplied. There is no evidence that these goods had not been asked for by the recipients, but it is easy to see how such a system could degenerate into truck. Weavers seem to have been paid in cash with an occasional deduction for linsey or tobacco sold them. Advances were sometimes made which they promised to repay by a fixed sum whenever they brought in a cloth. On one occasion Mrs Wansey bought a loom from a weaver for £4 and immediately relet it to him at 6*s.* a year.

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[1] 9 and 10 Will. III, c. 17. See Lipson, *op. cit.* III, 220.

The financial troubles of 1696–7 are well illustrated.[3] Owing to the state of the coin, the price of guineas had begun to rise early in 1695 and by January 1696 they were passing at 30*s.* At the same time, the shortage of silver coin, in consequence of the recoinage determined on in the previous November, became acute. Parliament took the first step towards the devaluation of guineas on 15 February 1696, by declaring that they should pass at not more than 28*s.*, and by April they had been brought down to 22*s.*[4] But from March onwards the Bank of England was unable to pay its notes in cash and they passed at a gradually increasing discount. Wansey had been paying for his locally bought wool in guineas up to 13 February, but after that date he ceased buying it in Warminster and supplied himself by ordering ten packs from Samuel Lewin, a London stapler, whom he paid the following November partly by a bank note and partly by a private bill. He noted in his diary that Parliament 'might have stopt the Rise of Guineys Long before they got to 30*s.*: but the Guineys were in the Great men's hands, now for the most part In the Trader's and Ordinary People's Hands'. In June he resumed buying wool in Warminster which suggests that supplies of coin were then arriving, since he paid in cash; but up to the following October he could not always pay the whole price at once. His London debts during the latter part of 1696 were paid by drawing bills on Gresham which were met by bank notes. He noted that, since the Bank could not redeem its notes at par,

> People that wanted money sold their Bancke bills for 8^{li} 10^{li} 12^{li} till it came about Decemb. 1696 to 17^{li} per cent loss: The Clothiers still kept on theire

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[1] The factors had been accused of taking six to twelve months' credit and it looks as if this were the case. *Reasons for restraining the Factors of Blackwell Hall from dealing in Spanish and English wool.*

[2] These three entries are the only ones of the kind.

[3] For the course of this crisis see W. Cunningham, *Growth of English Industry and Commerce*, II, 437.

[4] *H. of C. Journals*, XI, 451, 476, 525, 533.

> Trades; some lessened theire Trade others discounted Bancke bills and others ran more into Dept, Thus things continued the thinking men supposing the Parliament would Do something to make the Bancke a Creditt....But nothing being done In It about the beginning of Janu^y^ 96[/7] The Clothiers Concluded to send no more Cloth to London till such time they could be Payd in Money and not in Bancke notes as for some time Past they had been in Part; so that Jan^y^ the 11^th^ 1696 [/7] the Waggons from Warminster, Bradford, Trowbridge, Westbury Carry'd little if any Cloth.

Whether Wansey himself participated in this stoppage or how long it lasted he does not say. According to the prices given by Houghton the discount on banknotes went as high as 21 per cent in May 1697.[1] In that month Wansey paid a London debt with two bank notes and he was buying wool in Warminster and manufacturing as usual. The Bank's credit was restored by the end of September, but after May Wansey makes no further mention of bank notes. Only once, in October 1697, did he use an Exchequer bill for a payment (though later, in 1709 and 1710, his son received a few which were immediately cashed at the Excise Office in Devizes). All through the latter part of 1696 and the first half of 1697 he was receiving fairly large sums in cash enclosed in casks of redwood and madder. Some was in guineas, but in July 1697 fifty-five Pistoles are mentioned and they seem to have been in common circulation even after the recoinage. A year earlier, part of a debt to a local wool dealer had been paid with one and in 1704 another was changed in Warminster for 17*s.*

A few details of weekly wages, mainly after 1700, can be gathered from the daybook. William Prince, whose name is frequently mentioned, received 6*s.* a week, except at the very end of the period when he had 6*s.* 6*d.* He was a sort of general factotum, doing odd jobs and fieldwork and once at least being sent to Bristol fair; but he does not seem to have been regularly employed. He had an economic existence apart from his wages, leasing a piece of ground from Wansey, owning a cow and able to pay 24*s.* for hay. Two other men who worked at times with Prince received 5*s.* a week each. About 1690, shearmen's wages seem to have been reckoned at 1*d.* an hour which, for a twelve-hour day, would also make 6*s.* a week.[2] It looks therefore as if a shearman received the same wage as a responsible man in agriculture. Skilled men in certain trades received more. Roger Westley, a master carpenter and employer of labour, received 2*s.* a day for his own work, although he generally undertook jobs by the piece. A sawyer and his mate had 2*s.* 6*d.* a day for fifteen days' sawing in 1705. Masons had 1*s.* 4*d.* a day. A thatcher, 'old Yeats', had 2*s.* a day for himself and a server and on another occasion 1*s.* 2*d.* a day and 8*d.* for his man. Men at hedging and fencing earned 1*s.* 4*d.* and 1*s.* 2*d.* a day in 1709. A man fetching horse-loads of stone with two horses got 3*s.* a day, but Mrs Wansey noted that if she had paid by the load she would have saved 6½*d.* on the whole job. Women, probably working in the fields in April and May, had 8*d.* per day, and other women, for work which is not specified, had 7*d.* Maidservants living in the house had £3 a year; on one occasion an agreement was made that one should have 3*s.* 6*d.* a week and find herself. The only young persons employed were boys taken to learn to scribble; for these an agreement was made for three years beginning usually at 1*s.* 6*d.* a week and reaching 2*s.* 6*d.* in the third year. A few boys were taken at 1*s.* a week. These wages are 1*d.* a day for masons and 2*d*. a day for the thatcher above those assessed for summer wages in 1685,[1] and there is no trace of differentiation in rates for summer and winter. They agree very closely with the few instances for the first decade of the eighteenth century given by Mrs Gilboy[2] for the West of England (which does not include Wiltshire).

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[1] J. E. T. Rogers, *The first nine years of the Bank of England* (1887), table IV.

[2] This was the amount earned by shearmen in Trowbridge in 1677 when they made an unsuccessful attempt to demand 6*s.* 6*d.* *Hist. MSS. Com.* Var. I (Wilts. Q. Sess. Rec.), 173.

In Wansey's diary and household accounts and occasionally in the day book there are frequent mentions of the price of corn in Warminster market. It is clear that in 1684 a price up to 5*s*. a bushel for wheat was considered normal, for he noted in February 'Wee have good plenty of all things...wheat at 5*s*. the best, barley about 13*s*. p. quarter'. 'Four years of Extraordinary Plenty one after the other', up to 1690, made 3*s*. a bushel or even less a common price for wheat; and one wonders whether it was during these years that the transition was made from barley to wheaten bread as the normal food of the poor.[3] Certainly the latter was regarded as normal in the 1690's, but it had not become such a settled custom that it was impossible to return to barley in hard times. More than once in the bad years of 1694–8 Wansey remarked that owing to the high price of wheat 'the poor must eat barley bread'. During the 1690's the prices naturally show the same tendencies as those given by Houghton for Devizes from 1694 onwards;[4] but they fluctuate much more, suggesting (as one would suspect from Houghton's record) that his correspondent sent him information at infrequent intervals. The bad harvests of the mid-1690's bore hardly on those who had only their wages to depend on. In January, 1693/4, 'wheat last market day sold for 32*s*. p. sacke and Barley for 30*s*. 6*d*. the quarter so that it is now very hard with the Poore, work being also scarce'; and in April 1697, there were 'Great Complaints Amongst the People, Great Scarcity of money and Great scarcity of worke—the Poore some of them not having Barley Bread Enough'. There does not seem to have been any movement to buy corn to sell to them at a lower price as there was in 1757, when Wansey's grandson participated in it, but in the winter of 1699/1700 he 'gave much beer to People in the Smallpox' and he brewed ninety-six bushels of malt that year at a cost of £17. 15*s*. One curious item in his accounts is the sale, in 1704, of a quantity of rice to various people at 3½*d*. a pound.[5]

Wansey's diary is, in general, an impersonal record of the weather and of public events; but on a few occasions he records his own views. He disapproved of Monmouth's rebellion, 'they being not the people who should sett forth (God's) praise', and took the flight of James II to be a sign of God's judgment upon him. He welcomed the 'never-to-be-forgotten day' of the battle of the Boyne, but his enthusiasm soon faded with the disasters of 'this ungodly war' and the mounting toll of taxation. In 1701 he accounted that he had paid 'through the occasion of the Revolution in England' a total of £76. 4*s*. 1*d*. and in October 1706 it was £112. 0*s*. 4*d*., an average of just over £6. 11*s*. a year since 1688.

There is not much material to enable one to form a picture of the family's daily life. His household accounts, which survive in some detail up to 1701, show expenditure for 1683–4 (reckoning from midsummer to midsummer) of £17. 3*s*. but this does not include coal or the wages of a maidservant. In the late 1690's he was spending £45 to £50 a year, including both these items; and was enjoying a much greater variety of diet. Tea is not mentioned until 1706 and then in very small quantities; coffee is mentioned once, in 1712. The house contained a number of books which were often lent to neighbours; they included Ludlow's *Memoirs*, *The Revolution of Sweden*, *The Life of King William*, Josephus' *History of the Jews*, Raleigh's *History of the World*, R. Barclay's *Works* and Fox's *Journal*. It is obvious that he was well acquainted with current affairs and he often refers to the *Gazette*. Other newspapers are not mentioned until 1707 when his son wrote to Diston to ask him to send down the *Votes* and *Postman*. These went a considerable round among relations and neighbours, each recipient paying 3*d*. a week.

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[1] *Hist. MSS. Comm.* Var. I (Wilts. Q. Sess. Rec.), p. 155.

[2] E. W. Gilboy, *Wages in Eighteenth Century England* (Harvard Econ. Studies, XLV), ch. III.

[3] W. Ashley, *The Bread of our Forefathers* (1928), p. 41. It looks as if barley fell less than wheat. In December 1689, when wheat was 3*s*. a bushel, barley was 14*s*. a quarter.

[4] J. Houghton, *op. cit.* Prices from a large number of places are entered weekly from 1692 onwards, but Houghton did not secure a correspondent from Wiltshire until November 1694, when the Devises series begins. Like Warminster, Devises used the Winchester bushel.

[5] For the use of rice V. J. C. Drummond and A. Wilbraham, *The Englishman's Food* (1939), p. 123.

It is clear that the business prospered, but it is not easy to estimate its value. Wansey put a good deal of money into building a new house and he rented various pieces of land, one of which, at least, was held from Lord Weymouth on a lease for three lives. He left his son an 'estate' worth about £60 a year as well as the business which, according to Hester Wansey, would, in a time of good trade, easily allow of setting aside £1,000 for her daughter-in-law's settlement. Hester herself was left £800 and another 'estate', but we do not know the value of this, although she did not regard it as sufficient by itself to maintain her. This is some way below the fortunes of the wealthiest clothiers of the early eighteenth century, who were credited with possessing from £10,000 to £40,000 apiece, but it is probable that Wansey is a very fair sample of a large number of his contemporaries. Neither very poor nor very rich, they passed on their businesses from father to son and their families were to be found in the same place or somewhere near it until the advent of machinery, and sometimes afterwards. There were many more of these men than would be thought from a casual survey of the best-known names in Trowbridge and Bradford.[1] The Wanseys themselves went on making cloth in Warminster until 1824, but though they were not singular in this there can be few families which have preserved so much material relating to the history of their business.

Melksham, Wiltshire

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[1] J. Bodman, *History of Trowbridge* (1814), p. 22. Trowbridge and Bradford-on-Avon had a high turnover of clothiers which is not typical of the rest of Wiltshire.

THE LONDON SUGAR MARKET, 1740–1769

By RICHARD PARES

I

THE papers of Messrs Wilkinson and Gaviller contain much information about the London sugar market.[1] They do not furnish a continuous series of prices current, from which statistical tables or graphs could usefully be constructed; but the letters, and the prices which are incidentally mentioned, make it possible to give a connected account of the development of the market during these years. In this article I propose first to offer some general remarks, and to illustrate them by a chronological account of the state of the market from 1740 to 1769.

In this period the total supply of sugar at the London market almost doubled. In the first three years, the average output (which means, in practice, the average exportation to England) of the six British sugar colonies was 38,725 tons. In the last three years there were ten sugar colonies, to all intents and purposes, and their average total output was 70,320 tons.

Most of this sugar came to London, and it was the London market which ruled the price. In some years, such as 1740 and 1751, the prices at the outports —chiefly Bristol and Liverpool—were as much as 3*s*. higher than at London; in other years such as 1741 and 1757, the boot was on the other leg. When the differences of prices rose as high as this, sugar was sent round, one way or another, from port to port, and the prices were gradually equalized. What the consumption of Bristol may have been, I do not know; that of Liverpool was small, and would have been still smaller if slave-traders seeking to remit the proceeds of their sales from the islands to England had not sometimes chosen cargoes of sugar as the best method of doing so; in this way, the Liverpool price probably depended, in part, upon the state of the slave trade.

Nearly all the sugars which the House[2] handled were the property of the planters. They could, if they chose, sell their crops in the islands; and they frequently did this, whenever they had any reason, good or bad, to think that it would pay them better than consigning their sugars to England. The House showed no resentment when they did so; indeed, when the prices in the islands were good, it congratulated them, and condoled, at the same time, with such of its correspondents as were merchants, upon their misfortune in having bought at such an unpropitious season. Occasionally, however, it scolded the planters for their short-sightedness: if they had to remit to England in order to pay their debts or to buy their stores, they might find that sugars would have been a better remittance than bills of exchange—the premium of exchange might be too high, or the drawers men of doubtful character. These were just the circumstances in which the merchants in the islands would buy sugars rather than bills. Many merchants, especially slave merchants, had to remit, and others bought sugars to send them to Europe as a speculation. These men had to choose between buying sugars and buying bills, just as the planters chose between selling sugars and selling bills. The House, more often than not, condemned these merchant correspondents for buying—not only because bills would have been a better remittance, but because the buyers of sugar in the islands did not always know what they were doing. Very little difference in price was made between good sugars and bad, whereas in London the difference between good and bad would have been much greater; presumably this may have been, in part, a relic of the earlier conditions, when sugar was currency in the islands, and bad sugar fetched nearly as much as good sugar there. The House pointed this out more than once; but it is fair to add that there were a few occasions when low sugars could be remitted even more profitably than fine ones.

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[1] In *Essays presented to Sir Lewis Namier* (London, 1956), pp. 75–107, I have given a general description of the work of this House, and have explained why I have only dealt with the papers down to 1769.

[2] The firm of the House from March 1740 was 'H. Lascelles and Son'; from September 1743 it was 'Lascelles and Maxwell'; from March 1763 it was 'Lascelles, Clarke, and Daling'; from April 1765 to the end of the period discussed, it was 'Lascelles and Daling'. I shall not make these distinctions in this article, but shall refer to it continually as 'the House'.

Whether the sugars were the property of planters or of local merchants, they were sold on the same terms in London. That is to say, the House acted as sugar-factors, selling for a commission, normally of 2½ per cent.

There were four classes of buyers: the grocers, the refiners, the exporters and the speculators, of whom the first two accounted, in all probability, for more than nine-tenths of the trade. Sugar was only in demand for export on rare occasions after 1733. In the seven years immediately after the Peace of Utrecht, our exports of raw sugar were hardly ever less than a quarter of our imports, and sometimes more than a third. In the ten years after 1734 they only once rose above 10 per cent. To put the matter another way, before 1733 it was very unusual for the total quantities re-exported to fall below 100,000 lb. In the years after 1733, re-exports only reached that level six times. The chief and regular market for these re-exported sugars was Ireland; but upon certain occasions there was a demand for re-export to Germany and Holland. This happened in 1743, 1748, 1749, 1756 and 1759.[1] In all these years, except 1743, the explanation is the same: the blockade of France and of the French sugar colonies, by withholding French sugars from Europe created an accidental demand for the re-export of English sugars.

The two great influences in the London sugar market were those of the grocers and the refiners. They did not demand exactly the same kinds of sugar; the grocers were attracted by colour, the refiners by a strong grain.

> The sugars for the pans [the House wrote to John Harvie, on 27 November 1752] do always sell for more, colour for colour, than those fit only for the Scale, And for the former, they ought to be of a grey Colour and a rough grain which you will feel between your finger and thumb, and the better they have been cleaned the brighter they will appear to be, and sell the better. Some Sugars, and especially from Liguinea,[2] are very bright, but they have a yellow Cast, or more a Straw Colour, which are therefore not those chosen by the Sugar Bakers but are best for the Grocers who also buy, and use for the Scale all lower Sugars that are soft, and of a weak grain.[3]

The House often spoke as though the colour-scale had some absolute validity: thus, they once mentioned with surprise the fact that certain sugars 'ten shillings better in colour' than others only fetched, in fact, three shillings more at market. This illusion made them rejoice at the fact that the refiners would give more than the grocers for a sugar of a certain colour. They spoke as though they were getting something for nothing; but this was mere confusion of mind.

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[1] These figures are drawn from the Public Record Office, T. 64/274.

[2] Liguanea, the district immediately north of Kingston, Jamaica.

[3] I do not intend to give continual references to the documents, which were destroyed in the war and now only survive, so far as I know, in my transcript; but where a convenient opportunity offers, I will indicate in the text the date of the letter quoted, in order that, when I shall have deposited my transcripts in some public place, the references may be verified.

In the early correspondence of the House the grocers are spoken of as if they dominated the market: it is their manœuvres, their exploitation of the rumours of good crops, or of large fleets arriving, which appears to have regulated the market. They must have included some wholesalers, for, at the time of the Jacobite rising of 1745, the House explained why the grocers only bought from hand to mouth by saying that communications with the north were uncertain, so that only the London market needed to be supplied. From 1750, or thereabouts, the refiners appear to have had more influence. This is explained partly by the great increase in the number of sugar refining houses. 'The number of Sugar Houses has increased greatly in this place the last three years', the House told Jonathan Blenman on 14 March 1753, 'and also in the OutPorts and the luxury of the people has also increased, for the meanest now use hardly any other but improved Sugar, and it is Computed, that at least, ⅓rd is wasted or lessened in improving'.

Probably the change of taste which the House described in this letter accounted, in part, for the much greater consumption of raw sugars in England after 1750—though somewhat less than a pound of refined sugar may have been used in place of every pound of sugar which would have been consumed unrefined. Indeed, the increase of raw sugar production in the colonies was not keeping pace with the increased demand, mainly of the refiners. As a result, the refiners began to find that the price of their raw material rose upon them, and the increased expense led to financial loss. 'As Sugars bore high Prices, last Year', the House continued in the letter to Blenman which I have already quoted, 'many of the Sugar Bakers suffered Considerably and some of them as well as some of the Grocers are now applying to Parliament for the introduction of foreign Sugars'. They did so indeed, and without success; but, about this time, Parliament tried to bring about the required increase in raw sugar production by other means, namely by promoting the settlement of the uncultivated lands in Jamaica.

Unlike the grocers, who could, by purchasing at any season of the year, take full advantage of the state of the market, the refiners were not entirely their own masters. They had to keep working in the winter because, if they had let their sugar-houses go cold, the stocks of ready-made sugar would have mouldered. In the summer, however, they were under no such necessity, therefore they went out of the market in the spring, or only bought if the price suited them.

A last, and only occasional influence in the sugar market was that of the speculators. They do not appear very distinctly as a class in the correspondence of the House. Their existence is probably hinted at in numerous phrases about the quantity of sugar at market 'in the first hands'. Twice, however, the House described them rather more distinctly. In April 1752 they said that 'the great rise in the Market some time ago was owing to some People buying on speculation and not from any great want to Supply it'. Again, on 25 August 1752 they wrote to Gedney Clarke, 'We are glad to see some of the great dealers buying upon speculation of its advancing as it will be their Interest to hold up the market'. If mentions of speculators are infrequent, this is probably explained by the deliberate policy of the refiners. Mr Walter M. Stern has explained in his article on 'The London Sugar Refiners around 1800' (*Guildhall Miscellany*, February 1954), that the Sugar Refiners' Committee set its face against dealings in jobbed or second-hand sugars: in 1773 they branded everybody who did not comply as a person of 'very mean, base and infamous character, and ought to be despised, shunned, detested, and excluded from all bodies and societies of men whatsoever'.

The sugars passed from seller to buyer through the hands of the factors and the brokers. Only rarely were sugars sold at public sale in London; the chief exception consisted of the King's sugars—that is, those which had been received in kind, in payment of the 4½ per cent export duty at Barbados and the Leeward Islands. I do not remember an instance in which the House itself put up sugars for sale in this manner. It is not quite clear whether the services of the broker were used always. We read of a 'sugar buyer' who frequented Henry Lascelles's house, apparently in his professional capacity. On many occasions the House described itself as having 'higgled' the sugars all about the town, or 'shown them to the grocers' or 'applied to all the sugar bakers in town'. But it would not be safe to conclude that the services of the brokers were dispensed with on these occasions: the phrases quoted may only mean that the factor took the decision whether to sell, and at what price, and used the broker as a mere instrument. This, we know, was their normal relation. Sometimes the broker is explicitly mentioned as having carried a sample of certain sugars in his pocket. More often, the samples appear to have been arranged on a 'board'. On 24 September 1745 the House wrote thus to Samuel Husbands:

> As to the Sorts of those Sugars, it signifies nothing in respect to the denomination given them abroad, the Rule being to sell them according to their appearance here, and it often happens there's several Shillings difference a hundred between some people's first Whites and others, and between one part and another of a parcel of Casks shipped by the same person, the least shade of whiteness by which one Cask of Sugar exceeds another makes a difference in value, and yet it would not be perceived otherwise than by a Comparison of the Samples, shown together on one board; and the more Shades or degrees that appear between the samples of some and others make Still greater the difference in Value.

The samples could not always be exactly representative, for different parts of the same cask might be of different qualities, especially when the sugars had been cured in cask, a practice common in the Leeward Islands (but uncommon in Barbados, where the sugars were cured in pots and blended together afterwards in the cask). In cases of this sort, the buyer was entitled to expect an allowance on the price if the sugar did not answer the sample. There were some references to sugars 'sold with all faults'—here, no allowance would be made, but the practice was unusual.

If the buyer did not pay and the sugars had to be put up for sale again, he must—at least, so the House thought—pay any difference between the price he had offered and the price they ultimately fetched.

The sugar factor's art consisted mainly in the power to take two decisions—when to sell, and in what lots.

It was always his interest and his inclination to sell rather than keep: before he could land the sugars he had to advance the duties and the freight out of his own pocket, sometimes to the tune of several thousand pounds if a large fleet came in together. Of course he wanted to get this back as soon as possible. Moreover, most planters, when they shipped their sugars for England, drew bills of exchange on the factors for a part, at least, of their supposed value. Since the purchasers of sugar only paid in two months, and this term was sometimes extended by another month or two, the factor could not be in cash for the sugars in time to answer the bills of exchange unless he sold as soon as possible. More than once the House acknowledged, not without some shame, that it had made forced sales in order to meet the bills drawn upon it—naturally, in such cases, it would sell first the sugars of the same planters who had drawn the bills, but it did not always stop there. When the House kept sugars long, it wrote as though it had conferred a service upon its correspondents for the sake of a better market. 'We can truly assure you', they told Philip Gibbes on 23 August 1751, 'that it is against our inclination to keep Sugars any considerable time upon hand, and we never do so but with the sole view of service to our Imployers being manifestly against our own Interest to be long in advance for freights and duties whereon we do never charge any Interest'.

There seems to have been no general rule about the way to put up sugars together into lots. Sometimes more money could be made by selling the high and the low sugars separately, but more often the House found it better to sell large mixed lots—perhaps as many as sixty hogsheads—together at an average price. This must certainly have saved them trouble, but when they did it they represented it as having been an advantage to the planter, on the whole. Most planters objected to having their sugars sold along with those of other planters; indeed, it stands to reason that when this was done, an injustice was probably inflicted upon somebody or other. The House did not often admit to having done it at all, but once or twice they defended it as harmless.

> We note your desire [they wrote to William Bryant on 30 July 1746], to have your Sugars always sold Separate from any others, which we shall strictly observe; but we do declare it as a matter of fact, that we never, in selling sundry parcels together, made use of the good to pass off those that were worse, but have always rated every mark and the different Sorts of every mark according to their goodness, and to the best of our Judgement, and if any particular mark has been disliked we have thrown it off, as otherwise it would not be doing justice to the good.

Different classes of sugar naturally had their particular reputations and their particular fortunes, but it is hard to say anything definite about this. The House itself often risked generalizations on this subject, but they were mostly untrustworthy, like all merchants' generalizations of the period: a few years, or even a few months, in which the market remained subject to the same laws, could usually give the House an illusion of fixity which any extended research into its papers will show to have been unwarranted.

Much was said of the difference between the sugars of the several islands, or even parts of the same island; not all these general remarks were untrue, but there were numerous exceptions. The brown sugar of Barbados, the island with which the House did most of its business, was probably, as a whole, somewhat finer than the average of all the islands, though its weak grain rendered it suitable for the grocers only. In Barbados itself, the produce of the windward part of the island was generally deemed the best, but a local spell of dry weather, or some other misfortune, might cause it to forfeit its reputation. The sugars of St Kitts were mostly fine: the island had a rich soil, and much of it had been settled after 1713 and was therefore less exhausted than that of Barbados. Antigua sugar was mostly inferior to that of Barbados and St Kitts, but there were some very fine Antigua sugars and, towards the end of the period I am discussing, the House often wrote as though Barbados could not well compete with the Leeward Islands in muscovado sugars. Jamaica was still, in some respects, a frontier settlement, and its production was often very slovenly. In the early part of the period the House spoke as though it consisted almost entirely of low brown sugars. But Jamaica improved both in quantity and quality, and there were very fine Jamaica sugars, of a beautiful straw colour, before the end of the Seven Years' War, even though Jamaica sugars were still not equal, as a class, to most others:

> The Jamaica Sugars [the House wrote on 4 September 1756 to J. and A. Harvie], are in general very low and weak in quality, and not esteemed here nor abroad, which is chiefly owing to a want of care, and a slovenliness in the making of them. The Planters in the Leward Islands are careful and industrious, and their Sugars are in request, and we can sell them as fast as they are landed. Indeed the Sugar Bakers seldom work Jamaica Sugars without mixing them in the pans with those of the Leward Islands.

Not only particular islands or districts but even, on occasion, particular plantations might have their own reputation, good or bad, and the House often warned a correspondent that his mark would lose its esteem unless he amended his methods. Once or twice they reported that a sugar-refiner had vowed never to buy any more sugars of a certain mark. But it was not easy for the planter to standardize his production. 'You know', the House wrote to Samuel Husbands on 24 September 1745, 'that no plantation makes Sugar every day of equal goodness, but Some days better and others worse, and the canes of part yeild a better Sugar than those of another, so that unless you was to mix all the denomination of one Crop together in one Mass before it was casked, there will be a variety upon Comparison between the samples of some Casks and others.' To make matters worse, the planter did not always know the final result of what was being done under his own eye, for, as the House pointed out more than once, some sugars improved on the passage to England, while others did not, and nobody seems to have been able to foresee which was which. This probably accounts for a great deal of the indignation which the correspondents of the House appear to have expressed when they learned how their products had sold.

More important, and more useful, than the distinction between one island and another, or one plantation and another, is the contrast between the fate of fine and coarse sugars, above all between those of clayed and muscovadoes. Certain qualities of sugar were permanently in demand for particular purposes—thus, Barbados sugars, especially the clayed, were bought for making preserves, while dark brown sugars were wanted for home made wines, especially elder wine. Brown sugars were most wanted for exportation, when there was any demand of that sort, but if they were very dark the refiners did not like them for they were liable to waste most in refining. Besides these permanent properties attributed to certain classes, their fortunes were sometimes affected in different ways by more temporary influences. For example, when the price of sugar was high so that the poor could only just afford it, the coarser kinds were in more demand, and fell less in price, than the finer. The same thing might even be true when it was corn, rather than sugar itself, that was dear.

The House wrote much and often on the contrast between clayed and muscovado sugars. Claying seems to have originated in Barbados. It is described by Mr Deerr[1] as 'the process of covering the upper surface of the impure magma of crystals and molasses, contained in an earthenware cone, with a layer of wet clay, whence the water percolated slowly through the material, displacing the molasses'. It required more capital and more care than making muscovado sugars. To Florentius Vassall, a Jamaica planter who thought of taking up claying, the House wrote on 10 December 1750,

> unless you can get into the method of making the finest sort it is impossible that your claying of Sugars can answer...we do not pretend to be Planters or to understand thoroughly the Business of the Boyling House but we know in Bdos. the liquor is strained from the Clarifying Copper through one Woollen straining Cloth and afterwards to the next Copper through two Straining Cloths and unless the liquor is properly cleansed and strained, it is impossible that the sugar made from it, will strike well under Clay.

Many planters, however, in Barbados thought the additional price was worth the trouble, the more so because the process, especially if repeated (this was known as 'double claying'), yielded more molasses than the production of muscovado, and therefore made the island's considerable output of rum possible. The result was a sugar which could compete, though not always with success, against sugar refined in Europe: if the process was properly carried out, no trace of the clay remained visible, but the taste and smell of the sugar were, at best, somewhat affected. The second and third qualities of clayed sugars were scarcely distinct from muscovado—the Customs Officers often confused them, perhaps deliberately, and the prices were comparable: thirds commonly fetched no more than a good muscovado, if as much; low seconds began in price where muscovado left off, whereas first whites were, at best, 50 per cent or more above the price of the best muscovado. How many planters went in for claying, and what proportion of the island's total crop was clayed, are questions which cannot be answered from the Customs statistics or any other source; the planters clayed more in some years than in others, according to their expectations of the market; and this variation in supply, which seems to have been considerable, partly accounts for the ups and downs of price. As a rule, claying seems to have been general in Barbados, from the many references to clayed sugars in the correspondence of the House.[2] This would explain the fact that, unlike that of many other islands, the total crop of Barbados, measured in tons, was considerably lower in the fifty years after 1733 than in the fifty years before, and yet the island enjoyed considerable prosperity in this period, doubtless because the smaller tonnage was more than compensated by the higher value per ton. In some years clayed sugars did better than muscovadoes, in other years vice versa. Since clayed sugar was particularly used for preserving, its price depended in part upon the English fruit crops. The presumption was that the clayeds were usually bought by the grocers, in competition with London-made refined sugars (especially, it seems, the kind known as ground lump sugar) which usually governed the price. But there were times when the refiners bought the clayed, even the finest, because, at their price, they were the cheapest sugars to refine. This was particularly likely to happen when the price of brown sugars was, for some reason, disproportionately high,—for example, when the crops had failed in Jamaica, the chief producer of brown sugar, so that the total supply of muscovado was reduced, or when (as I have already said) the high price of sugar as a whole or the high cost of living in general caused the consumption to confine itself largely to muscovado.

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[1] *The History of Sugar* (London, 1950), I, 109.

[2] In the prices current quoted by the House in its letters during this period, there seem to be fifty-four references to the price of Barbados muscovado sugar, and fifty-five to that of clayed sugar, which was almost exclusively a Barbadian product.

The history of the sugar market in these years is, of course, one of seasonal and accidental fluctuations. A certain rhythm of the seasons can be discerned, though most generalizations that were made about it were too precise. One of the House's correspondents, Thomas Stevenson of Barbados, seems to have had a theory on this subject.

> We accept [they wrote to him on 6 August 1762] of the proposal you make of consigning us your whole Crop, and to keep your Sugars till between the 15th of April and the end of May in every year, War or Peace, charging interest on our advance for freight and Duties from a reasonable time after we received the Sugars and charging the same in the Accot. of Sales with the other charges. We do not think your Scheme will always answer, having found in some years that Sugars have sold better before Christmass than in the Spring.

In general, although some refiners with full stores of ready-made sugar stopped working when the warmer weather diminished the danger of mouldering, there was a brisk demand for sugar in the spring when the first consignments came home to a market which had been starved during the winter; at these times, especially in war when a large fleet came together, the first prices were very much the best, and those who were only two or three days late in getting their hogsheads out of the hold might lose as much as 2*s*. or 3*s*. per cwt. for their tardiness. The market then flagged until October, when much business was done. By Christmas it was usually dull again, because frost and bad weather would prevent the buyers from taking delivery for distribution in the provinces. But these were only rough tendencies to which there were many exceptions—e.g. in 1753 the spring market was low, but prices were higher in October and higher still at Christmas.

About the casual fluctuations of the market the historian is hardly better able to generalize than the House itself. Variations in supply and variations in demand succeeded and traversed each other in a series of bewildering movements, most of them small. War caused many variations in supply, so that the mere rumour of it was enough to send the price of sugar up and the mere rumour of peace enough to send it down. The risk of capture by enemy privateers and men-of-war was very high—a fact which can be seen in the insurance premiums which sometimes rose to 30 per cent. Though enemy action might reduce the immediate supply of sugar, the ultimate effects of war might increase it in the long run: if an enemy sugar island was conquered and its produce was admitted to the British market, it would bear down the price of British sugars: thus, in 1760, the House had to lament the unfortunate acquisition of Guadeloupe which was preventing a rise in the London price. Moreover, if the enemy sugar island was permanently annexed, as many were in 1763, the total supply of sugar in London would be permanently increased.

Besides war, the weather caused frequent and sudden variations in supply. Some islands were more subject to drought than others—above all Antigua, whose total output fluctuated widely: in 1753 it was 12,459 tons, in 1754 only 3,158, but in 1755 it rose again to 10,645. The other islands were not quite so mercurial unless they were struck by a hurricane; this happened to one or other of them every three or four years, upon an average, and the effects, exaggerated in advance by rumour, often had a great effect upon the London price—the House often used the threat of such a reduction of the supply as a point in its eternal argument with the buyers.

There were also variations in demand. Some of these, too, were attributed to war: for example, the increased taxes upon sugar itself which were levied in 1747 and 1759, as well as high war taxes in general. These were believed to reduce the purchasing power of the English consumer and disincline him to spend money on sugar. Other causes had the same effect—for instance, the bad harvest of 1740, which raised the price of corn, was believed to keep that of sugar lower than it would otherwise have been. When, however, corn was so scarce that the government forbade its use in the distilleries (this happened in the war years 1758–9 and in 1766 in peacetime), then the price of sugar was sure to go up, for the distillers used the molasses which the London sugar refiners turned out as a by-product, and the steep rise in the price of molasses enabled the refiners to pay more for their raw sugars. Once or twice the distillers even used sugar itself, but this does not seem to have answered very well.

Besides these influences of war and the weather, variations in demand also resulted from economic causes which the House could only discern or describe dimly. More than once they complained of the 'scarcity of money' which not only forced buyers to pay slowly but reduced the consumption altogether: when money was tight, the refiners could not dispose of their product, their stores were over-stocked, and they could not buy or work fresh raw sugars.

By its own account, the House did not make a very good hand of foreseeing these fluctuations. In 1744 the outbreak of war with France appears to have taken them by surprise: they sold sugars just before it took place, and held on to sugars too long at the peace in 1748. 1756 was a repetition of 1744. In 1758 they sold sugar because they wrongly believed that a peace would be negotiated; by the end of 1761 and the beginning of 1762 they were expecting a peace negotiation which would lower the price of sugar and got, instead, a war with Spain which raised it. On all these occasions but the last, they knew that a development such as ultimately took place was on the cards, but they miscalculated the exact time at which it would take place, and they lost the benefit of 2*s*. or 3*s*. movement in price. To do them justice, their record was probably better than one would think from reading their correspondence: where they had miscalculated they had to apologize, but where they had guessed right they did not always feel called upon to boast, therefore we know less about the successes than about the mistakes.

After a few months in London George Maxwell discussed, in a letter to a friend, his recent education in the art of selling sugars. 'I find', he wrote on 16 November 1743, 'there is still more to be learned, and that is, to form a right judgement of the times and Seasons, when to sell and when to keep, but the times since my arrival have been so changeable as to puzzle the Judgement of the oldest Sugar Sellers of Them all in regard to Muscovadoes and the browner claids and the reson is because ne'er a man of them is a Conjurer.' Two years later it was the same story. 'Nothing can be more fluctuating than the Market for Sugar, the Continuance of an easterly wind for a few weeks shall raise it, and a westerly wind with the bare expectation of the arrival of Ships shall lower it again.'

The history of these fluctuations cannot be effectively presented in general terms: the purpose of the second part of this essay is to exhibit them in detail by a brief chronological account.

II

The oldest letter-book of the House opens in March 1740. The price of brown sugar appears to have been satisfactory: Barbados muscovadoes, not of very good quality, were selling at 30*s.* to 32*s.* The ships seem to have gone out late to the West Indies, probably because of the Spanish war which had begun the previous year, and they were not expected back for some months. This circumstance was enough to counteract some unfavourable influences, such as that of the long frost which caused an entire cessation of business, and the late, cold spring, with a prospect of a short crop of soft fruit which needed clayed sugars to preserve them. The market continued dull until the end of May, when brown sugars began to be in demand. Even clayed sugars were bought by the refiners, since there was so little brown sugar at market; but the finest of all were not wanted. As often happened when the prices of all sugars were relatively high, brown sugars kept up better than white, and those white clayed sugars which were most akin to the browns did better than the finest qualities. Not until the end of July did the fleets come home from the West Indies; even then the prices fell by no more than 2*s.*, for some of the islands had made short crops. The grocers did their best to resist a rise of price, buying 'from hand to mouth' throughout the year; but the news of a hurricane and of some other disaster which befell the Leeward Islands ships caused the price to start by 2*s.* or 3*s.* in November, and on the 24th of that month middling Jamaica muscovadoes were selling at 35*s.* the cwt. Brown sugars still did better than clayed at the end of the year. On 6 December the House complained that, while muscovadoes sold at 33*s.* and 34*s.*, clayed sugars, '10*s.* a hundred better in colour' would only fetch 36*s.* to 37*s.*; but fine clayeds, about the same time, were fetching 41*s.* to 47*s.*: the grocers might boycott them, but the refiners were buying them 'as being by much at present the Cheapest Sugar in Proportion at Market'.

The market remained dull until the middle of 1741, and muscovadoes remained within the range from 30*s.* to 36*s.* per cwt. The crops in most of the islands were good, especially for brown sugar, and this explains the fact that clayed sugars, which were produced by hardly any other island except Barbados, now did much better than muscovadoes. The corn harvest of 1741 in Great Britain was much better than that of the previous year; and, when wheat began to come down from famine prices, the average consumer could probably afford a better class of sugar.

There is a gap in the records from February 1742 to September 1743. When the correspondence reopens, muscovadoes were low, because the Leeward Islands and Jamaica fleets were expected shortly: the Jamaica sugars were selling at 27*s.* to 34*s.*, and they would have been really low but for re-export, which was 'owing to less being made this year than formerly at some of the foreign plantations'. (Great Britain, at this time, was only at war with Spain, which produced little or no sugar for the European market; it was a war with France which might create a demand for the re-export of British sugars by withholding French sugars from Europe.) The House was expecting Jamaica sugars to arrive at any moment, and therefore sold Barbados muscovadoes; but in the middle of September came the news that a large fleet from Jamaica had met with a terrible storm, so the prices went up—not for clayed sugars, which were doing well already, and could not be affected by anything that happened to a Jamaica fleet. The disaster turned out to be less serious than it had been thought to be: the fleet reassembled and sailed again, but it met another storm, and some of the ships had to get into the outports, so that the London prices kept up well. Trade, however, was dull, as usual, in the depths of winter. The suspense was heightened by a political event. In February 1744, a bill was brought in for increasing the duty on sugar; the Ministry argued that this duty would be paid by the consumer. The House did not agree with them, 'yet being desirous to do the utmost in our power for the interest of our employers we chose to see the issue of this bill and its effect upon the market, before we would expose those to Sale that are come to hand—it may be that such an imaginary notion may give a greater Start to Sugars, though we do not see any reason for it'. The bill was defeated, for the time being;[1] but into the midst of the suspense which it created came a declaration of war by France. The House was taken by surprise: 'That was an event by no means expected, but it was rather believed our King would have declared first. It was unlucky as we had kept so long, and that same day we sold a great many others, however we acted according to the best of our Judgement and we were affraid of the arrival of some Ships with new Sugars from St. Kitts.'

This war, of course, raised the price of sugars higher than they had been for many years: in July 1744 Jamaica muscovadoes were selling from 34*s.* to 41*s.* But about that time, a vast fleet arrived from the Leeward Islands, which lowered the market for all but the finest muscovadoes. The crops in the islands were no more than average, but were magnified by rumour, and their effect on the market was exaggerated by the fact that, as always in a war with France, the entire produce of the West Indies arrived at once in one or two very large fleets. But this also meant that, in between the fleets, very little new sugar arrived and the market had time to recover, which it seems to have done at the end of 1744: in February 1745 muscovadoes were selling from 32*s.* to 40*s.*, clayeds from 38*s.* to 53*s.*

1745 was a year of great animation, for one reason or another. At the beginning of March came the much-delayed news of a dreadful hurricane at Jamaica. Once more the House had been caught on the wrong foot: they had been afraid of a few ships dropping in from the Leeward Islands to damp the market, and had sold off all the sugars they had. In June they were expecting the arrival of a large convoy from Jamaica so, once more, they sold everything they had. The convoy did indeed arrive, but only nine ships strong: it had been scattered, and eighteen ships had been taken. Prices bounded on this news; but many other ships of the convoy got safe to Ireland, and on 24 September the House reported, 'such Sugars as sold three weeks ago at 44*s.* per cwt. are now reduced to 40*s.*, only 39*s.* offered for them'. Evidently, the partners in the House were tearing their hair: they did not know what to do. Something worse still was in store for them. The Young Pretender landed in Scotland, and the great political crisis which followed this news completely upset the market.

> 'We were several Days [the House wrote on 9 October 1745] in Selling your Sugars and they were Shown to Several Grocers, many of which Seem quite unwilling to trade in these times of diffidence. Money is not to be borrowed now upon the best Security at the legal interest. Trade is quite at a Stand, because people do not know whom to trust. Yours are sold to people of Substance and we thought it better to sell them than to keep, as things grow daily worse

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[1] See my book, *War and Trade in the West Indies* (Oxford, 1936), pp. 503–4.

> and worse...the Rebellion has, we may reasonably Compute, prejudiced you in the Sales of the above Sugars one hundred pounds, and how much more on those that are to come God knows.

About the same time they wrote that sugars had fallen 10*s*. or 12*s*. per cwt. in the last six weeks, only a false rumour that the Dutch intended to declare war on France, which created a 'smart demand for the exportation of brown Sugars', keeping the market up at all. But in January, after some weeks of buying from hand to mouth, it became clear that the rebellion was likely to be suppressed. Muscovadoes sold from 43*s*. to 49*s*. per cwt. in February 1746, because so many ships were taken by the French. In March, sugars sold 'vastly high'; in April the market was dull, for the grocers and refiners bought sparingly in expectation of the arrival of fleets: 'three or four of them', the House wrote in June, 'buy ten hhds. only in Company to divide in several shares'. The suspense was relieved at the end of July by the arrival of a large fleet from the Leeward Islands and the expectation of another from Jamaica. Muscovadoes were now down to 38*s*. to 46*s*. per cwt.; even clayeds suffered since, when muscovadoes were cheap, the grocers supplied themselves with 'a coarse kind of refined Sugars called bastards which answer well enough in the room of Claids'.

The fleets from Barbados and the Leeward Islands arrived at the beginning of August: the Jamaica fleet was expected soon after, so the House sold as many sugars as they could, and they were right to do so, for the prices fell by 4*s*. for whites. The Jamaica fleet then turned out to be small but the prices did not rise, since single ships dropped in throughout the summer and the second fleet from the Leeward Islands was expected. This fleet reached Portsmouth in November, but easterly winds prevented it from getting round to London, so that the market grew better for a time. The House complained of heavy sales throughout the year.

A false rumour of peace lowered prices a little at the beginning of 1747: muscovadoes sold from 35*s*. to 45*s*. When it became clear that the war would continue, a great rise began. It was known that the crops had failed all over the British West Indies, although there were still some sugars of the previous crop to come home from Jamaica, and the English market was well supplied for several months. A long tug-of-war ensued between the buyers and sellers: the buyers were in no hurry for an immediate supply, and the consumers' demand was sluggish: 'the Scarcity of Money', the House wrote on 20 May 1747, 'is a general complaint. We find the consumption of Sugar decreases daily: for, as taxes increase people must learn to live with frugality, and nothing is more true than that the high price of Sugar lessens the consumption'. A few months later they stated more specifically that 'the midling sort of People in the Country, we are well informed, use Mellasses now that formerly used brown Sugar'. In these circumstances the grocers and refiners both bought from hand to mouth, in the hope that the failure of the crops in the islands would prove to have been exaggerated, but the prospects of the 1748 crop were blasted by the news of a hurricane in the Leeward Islands. In December, Barbados muscovadoes were selling at 40*s*. to 43*s*. and first whites had got up to 57*s*. to 63*s*., the highest price for many years. The hurricane seems to have been exaggerated, and good crops were expected from Jamaica.

In May 1748 it became clear that peace would be made: the refiners stopped work and the grocers sold off their stock on hand, in the hope that prices would fall. Only the talk of foreign demand kept them up at all. On 1 July the House reported that some Jamaica muscovadoes had sold at 26*s.* per cwt. which would have fetched 45*s.* before the news of the peace. The demand for exportation amounted to very little. The French and Dutch markets were bare of sugar because of the war, but this was only a temporary scarcity, and the House foresaw a dismal future. 'The suddenness of the peace,' they wrote on 1 July 1748, 'will greatly affect people abroad by Reducing greatly the Value of Sugars, and the Factors here don't chuse to be in advance and there is too much Reason to believe that Many Bills this Year will be protested. Sugars will lye a dead-Weight on the hands of the Factors, or Sell for a triffle, and Commission business will be very bad.' We have no means of knowing whether their fears were realized, for there is a gap in the records from August 1748 to August 1750.

On 20 August 1750 Jamaica sugars were sold at 24*s.* to 34*s.* per cwt.—worse prices than any during the war from 1739 to 1748. The market was dull, since there was a great stock of sugars in the first hands, and the price of London refined sugar was low. At the end of the year rumours of dry weather in Jamaica and short crops in some other islands encouraged some sales but the House reckoned that there were 15,000 hogsheads of sugar at market, and believed that any improvement would be only temporary. They seem to have been right: very little change in the market was noticed before the end of 1751: although the crop of that year was small in Jamaica, a great deal of the 1750 crop had remained in the islands for want of shipping, and came home in August 1751.

At the end of November 1751 came the news of a hurricane at the Leeward Islands and Jamaica. The price of brown sugars started upwards by 4*s.* per cwt. in a few days, and the total movement amounted to more than 10*s.* Clayed sugars were less affected, since they came only from Barbados. The House considered this rise of price to be merely speculative: there was no scarcity of sugars for present consumption, and the effect of the hurricane upon the size of the crops was still a matter for guessing. For some time, it looked as though the House was right: the price of Jamaica muscovadoes fell 5*s.* between 26 February and 10 April 1752 at which date it stood at 32*s.* to 40*s.* per cwt. But the speculators proved right in the long run: some of the ships from the Leeward Islands came home not half loaded so that the London refiners had to start using Barbados clayed sugars in August. At the beginning of December Barbados muscovadoes were selling at 36*s.* to 43*s.* Clayed sugars did not fully share in the general advance: they stood at various prices from 42*s.* to 56*s.*, and if, at the beginning of 1753, they rose somewhat higher, it was only because the refiners found brown sugars so scarce and dear that they were forced to work the clayed. There were several causes for this disproportion. There was still no shortage of London refined sugars, by whose price that of all clayed sugars was principally governed. Moreover, when all sugars were high, it was, as before, the cheaper kinds which sold best, since the consumers bought a lower class than was customary. Thus it was the refiners who suffered most in this year of high prices, for their raw material was dearer than they could afford and they could not recover their cost in the price of their own article. This, no doubt, is the reason why they took part, in March 1753, in the agitation for the introduction of foreign sugars.

Meanwhile, the price of brown sugars began to fall: on 14 March it was 5*s.* lower than it had been on 24 January. Prospects of the crops were good in all the islands, and a long period of plenty set in. Almost every year from

1753 to 1762, the House complained that unprecedented quantities had been imported. This was, indeed, a decade of unexampled progress in Jamaica[1] and the House began to fear that, in the long run, the supply would permanently exceed the demand.

When the crops began to come home, the prices fell further: good muscovadoes dropped from 38*s*. to 34*s*. During the course of July, and in September, Barbados muscovadoes generally ranged from 26*s*. to 34*s*. All this summer, the refiners held off the market, so far as they could, in order to lower the price; the factors would have liked to lock up their sugars too in hopes of something better and, indeed, some of them did so—not so the House, which had to sell in order to answer bills of exchange drawn upon it. Clayed sugars held up better, as they were not affected by the production of Jamaica, but even they began to come down in November, since the refiners (who had plenty of made sugars in their stores) had been able to supply themselves cheaply with raw material and brought down the price of their own goods: at the end of the year, first clayeds stood at 39*s*. to 53*s*. per cwt. The House reported on 8 December 1753 that the market had 'drooped again, of late, and very flat at present, and no wonder, as there is Computed to be 20,000 Casks[2] of brown Sugars in the first hands besides some to come from Jamaica and the Leeward Islands, which will be more than the Consumption will take off for a long time, and the importation from last Crop will greatly exceed the annual home Consumption'.

In a letter of 12 January 1754 to Thomas Stevenson they gave more precise figures: the importation was 'computed at the quantity of at least 90 thousand hhds., and reckoning them at 14 cwt. each....Into this Port have come 75 thousand of the number, which exceeds the consumption above 20 thousand, and it is wonderful how our market has kept up, so well as it has done and contrary to our expectation'. The state of the market was not due only to a plentiful importation: money was said to be 'scarcer here, at present, than ever was known, and the Sugar Buyers took about double the time, and some more in paying than they did formerly'.

The effect of the large importation of 1753 was long felt. The crop of 1754 was a little smaller than that of 1753, chiefly because Antigua, which had made a phenomenal crop in the previous year, was now afflicted by drought, and Barbados was also below the average. The market improved somewhat in the summer—Barbados muscovadoes stood on 7 July 1754 at 35*s*. to 43*s*. But Jamaica had done well, and in any case, the refiners had large stocks of manufactured sugar on hand, the produce of the previous year's importation. Towards the end of the year prices fell again: on 10 December sugars were sold for 39*s*. per cwt. which would have yielded 43*s*. in September; and by the beginning of January they were 2*s*. lower still.

Now, however, the diplomatic tension between England and France began to blow up into the Seven Years' War. The crisis deepened very slowly, with many fluctuations, which caused the prices of sugar to go up and down by 1*s*. or 2*s*. at a time. Another large importation was on the way from Jamaica, and even the danger of war could not keep the price up: on 30 July 1755 Jamaica sugars were quoted at 26*s*. to 36*s*. Once more the importation was said to exceed the consumption: 80,000 casks were said to have come into the port of London, which was, in the opinion of the House, 20,000 casks more than could be consumed on the spot. But at the beginning of 1756 there arose, from two quarters, a demand for exportation: the British navy had seized many homeward bound ships from the French West Indies (without any declaration of war) and 12,000 casks of sugar were said to have been lost in the earthquake at Lisbon. Since Ireland was largely supplied from Lisbon and Hamburg from the French Atlantic ports, a brisk demand sprang up and, according to the House 11,000 casks were re-exported from London between 1 November and 30 January.[1]

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[1] For the figures, see Deerr, *op. cit.* I, 198.

[2] The House never explained just what they meant by 'Casks'. Most casks were hogsheads of 14–18 cwt. apiece, but there were also some tierces, each of which could be reckoned as two-thirds of a hogshead, as well as a number of barrels which contained, on an average, one-sixth of a hogshead.

The 1756 crops were large again, and much of the previous importation was still on hand in London in April 1756. The House wrote on 13 May 1756 that even if war was declared against France (an event which happened, greatly to their surprise, five days afterwards), 'we do not see room to expect a rise in the value of raw Sugars, as the Sugar Bakers have large Stocks of improved Sugars on hand, and the prices of them considerably fallen'. They were wrong: although the war had no immediate effect (indeed, sugars fell 5*s*. or 6*s*. by the beginning of August) yet, when the French began to take our sugar ships, the price began to rise in the home market and, at the same time, the seizure of more French ships by the Royal Navy stimulated the demand for re-exportation. Thus, even a large crop in Jamaica was not enough to prevent the price from going up at the end of the year. Jamaica muscovadoes were quoted at 30*s*. to 40*s*. per cwt. on 8 January 1757, and they went still further, for the great scarcity of corn induced parliament to forbid the distillation of wheat. This advanced the price of molasses from 11*s*. to 22*s*. per cwt., and the distillers even made an attempt at using brown sugars, though without success. Once more, the House had allowed itself to be taken by surprise: 'it had been lucky', it wrote on 9 February 1757, 'if we could have kept our Jamaica Sugars to the present time, but that was not to be done as our Employers drew upon us too fast, and above the value of the Effects consigned us'. Clayed sugars alone experienced little of this rise, for the town was still full of refined sugars, which had been manufactured from the importation of the previous crop.

It is difficult to say what were the prices in 1757: large fleets came home from almost every island except Barbados and made a great impression, for the time being, on the sugar market, already lowered by the great supplies of refined sugar on hand from the previous year. 'It happens also', the House wrote on 3 September 1757, to Gedney Clarke, 'that the country people are poor, and have not been able to afford to buy Sugar, on account of the dearness of Grain, and they have hardly been able to purchase Bread for the support of their Families. These Circumstances have greatly reduced the value of Sugars, and the Buyers have bought most sparingly.' Only the demand from the distillers seems to have kept up the price.

> Mellasses once rose as high as 37*s*. per cwt. [the House wrote on 24 February 1758 to Thomas Stevenson], and is now down to 28*s*. per cwt. and in little demand. The high prices for mellasses induced the Sugar Bakers to work briskly for a time, and now their Houses are all full, and a slow vent for their goods, which makes them stand still. There would seem already too much Sugar made for the consumption. At least, I think, for certain, it must be the case in a few

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[1] It is interesting to compare the information given by the House with the official statistics in Public Record Office, T. 64/274. In 1755, 15,525 cwt. of sugar were re-exported to Germany, 16,840 cwt. to Holland, and 64,985 cwt. to Ireland; in 1756, the respective figures were 53,511 cwt., 26,733 cwt., and 87,064 cwt. All these figures are very much in excess of the averages.

years, as the Plantations are increasing in Jamaica. The Distillation has been a great aid in the consumption of Sugars, which must otherwise have been miserably low at this time, but that may not be the case next year, there being a prospect for a good harvest.

Once again the Royal Navy came to the rescue: in the summer of 1758 great numbers of Dutch ships were seized carrying French sugars home from the West Indies and, during the resultant lawsuits in the prize courts, all these sugars were locked up, so that the Dutch and German markets were very bare. Great quantities were therefore demanded for re-exportation from England. This happy circumstance kept up the price until the middle of 1759. Instead of complaining, as it had done for so many years past, of large importations and stocks hanging over from one year to another, the House exulted, on 31 July 1759, over the fact that 'our market is almost quite bare of Sugar and the prices advanced far above they have been at any time since the war'. On the same day they reported that Barbados muscovadoes had sold at 50*s*. to 56*s*. per cwt. A few months later even these prices were made to look insignificant, and the House had to apologize for them. 'At the time we sold these Sugars', they wrote on 20 November 1759 to J. and A. Harvie, 'we consulted your Interest and we thought we did well, as there were great crops expected home from Jamaica. We find since, that the Crop will fall short of the quantity that was expected by 12 to 15,000 hhds. The market has since advanced.' According to the figures given by Mr Deerr, the House must have been wrong, for the Jamaica crop was, in fact, half as large again in 1759 as in 1758; and this, perhaps, is the reason why the prices fell in the first months of the next year. Moreover, a series of better corn harvests in England enabled parliament to permit distillation of wheat once more; the price of molasses fell from 30*s*. to 13*s*. per cwt., and this must have had an effect upon that of raw sugars. At the same time, vast quantities of sugar flooded in from conquered Guadeloupe. Even the demand for re-export fell off, since the suits against the Dutch ships in the prize courts had been determined one way or the other. Great was the fall in the prices: on 18 July 1760 the House reported that clayed sugars which would have sold as high as 84*s*. per cwt. that time last year, had now gone for 52*s*. 9*d*. and muscovadoes had likewise been reduced from 45*s*. to 30*s*.

At the beginning of 1761 prices were held up by many captures of ships bound homeward from the West Indies, but lowered by the peace negotiations which ultimately proved abortive. The House was complaining once more of vast fleets and importations exceeding the possible consumption. 'Should there come a peace', they wrote on 5 September 1761, 'an event which is expected, as there are Negociations between our Court and that of France, the market would fall perhaps as low as at any period that ever was known.' However, things were not quite as bad as that: instead of the peace with France there was a war with Spain, which gave 'an immediate Start to Sugars'. Prices advanced more than 6*s*. in January 1762, but began to fall again in the summer when it became clear that this time peace would really be made. 'On the certain prospect of a Peace', the House wrote on 31 August 1762 to Alexander Harvie, 'the Stock of 4 per Cent Annuities have lately risen above 20 per Cent. Sugars are in no request and we have many hundreds of Casks from Barbados and cannot sell a Cask unless we would abate 6 or 7 Shillings a cwt. of the prices at which they were sold at the beginning of this month.' On 11 November, muscovadoes were selling from 33*s*. to 42*s*. per cwt. The market fell again in March (by 3*s*.) upon the ratification of the definitive treaty of peace. The

House foresaw a dismal period, as after the previous war. 'We are sorry to add', they wrote on 14 May 1763, 'that we have in that Respect but a Melancholy prospect before us for a twelvemonth at least.'

Unfortunately the records of the House do not show us whether these fears were realized, since there is another break from June 1763 to April 1765. The next letter-book opens cheerfully: there had been a very short crop in Antigua, and Jamaica had made relatively little (though more than it would have made in a good year before the war). Prices therefore were at least 10*s*. better than the House would have expected in peacetime. In May, Jamaica sugars sold at 30*s*. to 40*s*. per cwt., and in August for 34*s*. to 40*s*. per cwt. Barbados, which had made a good crop, profited by the misfortunes of others. At the end of October Barbados muscovadoes were selling from 39*s*. to 45*s*. per cwt., and first whites from 52*s*. to 57*s*. (Once more clayed sugars benefited disproportionately from the failure of crops in Jamaica.) But the House warned its customers that these good times would not last. 'In a plentiful year for Sugars', it wrote to Gedney Clarke on 14 November 1765, 'yours would not fetch what they have now by 8 or 10*s*. or more per cwt.' Indeed, sugars fell by 6*s*. per cwt. from January to March, and another 6*s*. in April, for a good crop was expected, especially from Antigua, in 1766. However, once more sugar producers had struck it lucky, in spite of the vast importation: for the Government once more prohibited the use of wheat in the distillery, and the price of molasses rose. This time, however, sugar benefited less from this circumstance than it had done in the previous decade: the distillers seem to have wanted to avoid using molasses, and they partly succeeded in doing so. The price of muscovadoes remained pretty constant, from 31*s*. to 40*s*. per cwt., until the end of August, when it rose to 35*s*. to 43*s*. per cwt.: the crops were fair in most of the islands, but there was still a prospect that sugar would have to be used in the distillery. In 1768 the prices began to fall again, for there was another large importation from the islands: by 15 November Barbados muscovadoes were selling from 30*s*. to 37*s*. per cwt. 'Had not Jamaica, Antigua etc. somewhat failed in their Crops this year (altho' we have had about as many as came last year quite up to March) Sugars would have been almost a drug, altho' the year has been favourable for fruit.' Thus the House wrote to a Barbados planter on 10 November 1768.

At this point the correspondence of the House, so far as I have preserved it in my transcripts, comes to an end. Perhaps one should not attend too much to its somewhat apologetic tone. The House was always complaining of excessive importations, and indeed, as I have said at the beginning of this article, the production of the British West Indies had risen by something like 80 per cent between 1740 and 1769. But the prices had never relapsed to the level of the 1730's. A temporary glut may have taken place for a year or two after each of the wars, but the letters of 1765 to 1769, and the prices quoted in them, show that, for one reason or another, sugar producers could do very nicely even in peacetime. The House sometimes wrote as if the higher prices were explained by the additional taxes which were laid upon sugar in this period; but these only amounted to 3*s*. per cwt. (1*s*. 6*d*. in 1747 and 1*s*. 6*d*. in 1759). It is more likely that, in spite of the House's jeremiads about the excess of the production over consumption, the demand for sugar in England, for use in coffee and tea above all, was keeping pace; in the next generation, we know that it was to exceed the consumption, and to create a lively agitation for free importation of foreign sugars.

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EXPROPRIATION OF THE ENGLISH PEASANTRY IN THE EIGHTEENTH CENTURY

By V. M. LAVROVSKY

I

THE object of this article is to summarize the results of recent study of the expropriation of the English peasantry; a problem organically bound up with the investigation of the parliamentary enclosures of the eighteenth and early nineteenth centuries, which formed the subject of my previously published work.[1]

The main problem here, as Soviet historians understand it, is the succession of different forms of landownership: common ownership, feudal ownership, and small, independent peasant economies. The last-named derive, as we believe, from the disintegration of feudal ownership. They subsequently decline and are squeezed out by the modern private (bourgeois) ownership of the big landlords. The peasant economy is then replaced by a form of capitalist production in which the tenant farmer or leaseholder exploits the labour of hired agricultural workers: this serves as a source of capitalist rent which the farmers pay to the landlords.

Soviet historians of the agrarian question link up the succession of different forms of landownership with the succession of different forms of feudal rent, the transition to the monetary form of feudal rent and its further development and transformation into capitalist rent. In particular, the level and extent of peasant landownership are, in our opinion, the result of the evolution of 'rental' relations and of the development of capitalist rent in England in the sixteenth to eighteenth centuries. The 'specific weight' of peasant landownership is inversely proportional to that of the 'improved' and capitalist rent in the total of manorial incomes. Of course, the successful penetration of 'improved' and capitalist rent into relations of landownership should be studied in conjunction with the geographical peculiarities of the individual districts, the concrete historical conditions of time and place, general economic factors, the prices of agricultural and other products, etc.

What, then, primarily interests Soviet historians studying the history of the English peasantry in the sixteenth to eighteenth centuries? The main problem lies in determining the social laws which made themselves felt in the English village in the period of so-called primitive accumulation (in Marx's understanding of this important term[2]) in connexion with the birth of the new social formation of capitalism. These laws become most apparent in the sixteenth to eighteenth centuries and find their classical expression in the ruthless expropriation of the English yeomanry in the eighteenth century. They are to be found not in the struggle for feudal rent as in earlier periods, but in the transition to capitalist rent. This radically changes the problem of landownership for it draws our attention not so much to the evolution of feudal landownership (although elements of such evolution still exist not only in the seventeenth century but in the eighteenth as well), as to the rise of a new form of landownership adapted to the conditions of capitalist development. In its concrete historical aspect this process consists in the *differentiation* and *expropriation* of the English peasantry in the hundred years following the bourgeois revolution. Here, too, it is necessary, first of all, to pose the problem of the bourgeois revolution itself: the role of the peasantry in the revolution and the significance of the revolution for the English peasantry and its subsequent destiny. At the present moment this problem and a number of others relevant to it can be more easily posed than solved.

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[1] V. M. Lavrosvky, *Parliamentary Enclosures of Common Lands in England in the late XVIII and the Early XIX Centuries* (Moscow, 1940). My book was based on the parliamentary enclosure awards which I had the opportunity of studying at the Public Record Office in 1925 and 1926. See the review of this book by Dr C. Hill in *Econ. Hist. Rev.* XII (1942), 92–5. See also *Twenty-five Years of Historical Science in the USSR* (in Russian) (1942), p. 242.

[2] Marx, *Capital*, I, 718–21. Marx, as is well known, uses this term polemically against the 'previous accumulation' of A. Smith and his idyllic conception of the methods of the primitive accumulation of capital based on 'parsimony'. Marx exposes the puritan legend accepted by this ideologist of the English bourgeoisie of the middle eighteenth century and considers that the *basis* of the process of so-called primitive accumulation is the expropriation of the direct producers, the peasantry. Marx stresses that in different countries this process takes on different

What was the condition of the English peasantry on the eve of the revolution? To what degree was it differentiated? What were the quantitative indices of the differentiation process and how far had it progressed by the 1640's of the seventeenth century? What was the immediate influence of the revolution on the English yeomanry? Did the revolution improve or worsen the condition of the yeomanry? What changes took place in the relative importance of the different groups of the English peasantry? How did the bourgeois revolution ultimately affect the fate of the English peasantry? What was the role of the so-called 'glorious revolution', the uprising of 1688–9 and the land usurpations of the 1690's which no doubt greatly facilitated the growth of land monopoly in England? It is significant that a number of investigators—Johnson,[1] Gray,[2] Davies[3]—who studied the lists of land-taxpayers, manorial surveys of the seventeenth century and parliamentary enclosure awards of the eighteenth century came to the conclusion that the most critical period for the English yeomanry was the period from the late seventeenth century to the 1780's. This was the century following the bourgeois revolution and preceding the highest wave of parliamentary enclosures, which covers the two decades of the Revolutionary and Napoleonic wars.[4]

The parliamentary enclosures which became especially widespread in the period (1793–1815) merely concluded the process of the expropriation of the

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aspects, goes through different phases in different order in different historical periods. It takes place in the classical form *only* in England, which is therefore taken as an example and chief illustration of Marx's theoretical theses. It was on the example of England, the development of the English yeomanry and its subsequent downfall during the transition to the capitalist mode of production in agriculture that Marx discovered and formulated his laws of the development of capitalism in agriculture.

[1] A. Johnson, *The Disappearance of the Small Landowner* (1909).

[2] H. L. Gray, 'Yeoman Farming in Oxfordshire from the XVI c. to XIX' in *Quarterly Journal of Economics* (1910).

[3] E. Davies, 'The Small Landowner, 1750–1832, in the Light of the Land Tax Assessments', *Econ. Hist. Rev.* I (1927), 87–113.

[4] V. M. Lavrovsky, *Parliamentary Enclosures of Common Lands in England in the Late XVIII and Early XIX Centuries*, pp. 28–31. Upon reading Slater's data on the statistics of enclosures given in an appendix to his book (G. Slater, *English Peasantry and the Enclosure of Common Fields* (1907)) I became convinced that 48·5% of the entire area enclosed by virtue of the parliamentary enclosure acts of the eighteenth to nineteenth centuries fall in the period 1793–1815.

English peasantry, but were not its main cause; the English peasantry as a class disappeared before these more extensive parliamentary enclosures.[1]

In my book I touched only on the concluding stage in the process of expropriation of the English peasantry, when the wave of parliamentary enclosures reached its peak. This accounts for the *static* nature of my investigation and the absence of the necessary dynamics in it, which alone would make it possible to view the process of expropriation of the English peasantry as a whole or at least to indicate its separate stages. Such a dynamic treatment can be achieved by a retrospective analysis of the English village in the 150 to 200 years preceding the agrarian and industrial revolution of the eighteenth to early nineteenth centuries. This necessitates the use of sources other than the acts and awards of parliamentary enclosure and the application of different methods of treatment and investigation.

In collecting the necessary materials for my book on Parliamentary Enclosures, I was guided by the methods of selective statistical sampling.[2] The number of sources studied and the area involved—approximately 92,000 acres— were deemed sufficient to determine the average percentage of peasant holdings extant in the parishes and manors affected by parliamentary enclosure in the given district in the given period. This average figure, according to my calculation, amounted to 22·5 per cent and varied in different parishes and manors from 95·1 per cent (Kirkley, Suffolk) to zero (Swallow, Lincoln).[3]

Differentiation of the Peasantry, Yeomanry and Tenant Farmers, 1793–1815

	Peasant-type proprietors			Yeomanry (referred to as yeoman in the Awards)			Tenant-farmers		
	Proprietors (%)	Landholdings (%)	Average size of holdings	Proprietors (%)	Landholdings (%)	Average size of holdings	Tenant farmers (%)	Area leased (%)	Average size of area leased
Over 50 acres (big peasants)	4·3	47·9	108·5	16·7	59·9	101·8	10·0	71·2	117·4
25–50 acres (middle peasants)	4·5	16·9	36·8	16·7	21·6	36·7	5·5	12·6	37·9
Less than 25 acres (small peasants)	91·2	35·2	3·3	66·6	18·5	8·3	84·5	16·2	3·2
	100	100		100	100		100	100	

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[1] One must look for other causes leading to the growth of land monopoly in England. In particular, insufficient study has been made of the results of the agrarian policy of William of Orange and the effect of the 'glorious revolution' on the English peasantry. This is one of the most urgent tasks facing historians of English agrarian problems during the last decade of the seventeenth and first half of the eighteenth centuries.

[2] In a district covering twenty-five counties—primarily in central and eastern England—I chose at random fifty awards and seventy-five maps of parliamentary enclosure affecting approximately sixty parishes and manors spread over the district chosen as an example for investigation. The time limits I set at 1793–1815. The number of enclosure awards studied and the area affected comprised approximately 5% of all sources of the given type available for the district and period. Bowley (*Elements of Statistics* (1926), pp. 274–5, 280) considered it possible to limit selection to 2% of all cases, on condition that the chosen instances appear on *a priori* grounds equally likely.

[3] Lavrovsky, *op. cit.* pp. 116–17, Table 6. In the supplement to this book: 'Maps of Parliamentary Enclosure of Common Lands' the parishes and manors are divided into four groups: (1) 42–80% of peasant holdings, (2) 15–40%, (3) 10–15% and (4) less than 10%, depending on the percentage of peasant holdings extant up to 1793–1815.

We shall not dwell on the content and main conclusions of my book, but shall only refer to one table illustrating the differentiation of the English peasantry, a question of basic importance to Soviet investigators.[1]

These conclusions appear to us to be of interest and deserving of attention not only in themselves, but as a starting point for the further analysis of the differentiation of the English peasantry in the seventeenth century.

II

As can be seen from the table, the picture of the differentiation—'depeasantization' (Lenin)—of the English peasantry in 1793–1815 is extremely vivid. Large-scale peasants who comprise only 4·3 per cent of the total number of peasant-type proprietors owned 47·9 per cent of the total area of peasant holdings; the respective figures for the 'middle peasants' were 4·5 per cent and 16·9 per cent, and for the 'small peasants' 91·2 per cent and 35·2 per cent. The differentiation of the yeomanry group (peasant-type proprietors referred to as 'yeomen' in the awards) is not so sharply defined. The differentiation is sharpest in the group of tenant farmers which includes up to 10 per cent of the farmers of the capitalist type (according to size of area leased); 'middle peasants' are also encountered here, but the prevailing number of leaseholders consists of various small tenant farmers of the peasant type.[2]

Having realized that the picture of the differentiation of the peasantry obtained from the enclosure awards was a *static* one I have formulated the following problem for further investigation: to collect a series of documents on the manorial history of the seventeenth to early eighteenth centuries bearing on the parishes and manors heretofore studied only in the final stage of expropriation of the peasantry as reflected in the parliamentary enclosure awards of 1793–1815. The exceptional value of the manorial surveys and rentals of the seventeenth century appears indisputable. A number of documents of this type were studied by Professor A. N. Savin[3] whose premature death (he died in London on 29 January 1923) prevented him from making full use of these sources. They serve as the foundation for my investigation *Studies on the History of the English Manor in the Period of so-called Primitive Accumulation*,[4] in preparation.

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[1] Dr Hill justly points out in his review that 'in accordance with Russian customs since Lenin's *Development of Capitalism in Russia* the author divides the peasantry into three categories: big peasants (over 50 acres, average 108·5 acres), medium peasants (25–50 acres, average 36·8 acres), and small peasants (less than 25 acres, average 3·3 acres). The basis for division into these main groups of peasant-type proprietors is given in Ch. 6 'Peasant Landownership in Enclosed Parishes', see Lavrovsky, *op. cit.* pp. 84–113, 116–18.

[2] In the paper 'Parliamentary Enclosures in the County of Suffolk (1794–1814)', *Econ. Hist. Rev.* VII, (1937), we showed that the differentiation of land proprietors of the peasant-type and tenant farmers is especially well defined if we take into consideration two aspects of this process which sometimes coincide: the merging of big peasants and big tenant farmers who often prove to be the same proprietors. This observation, made on eleven Suffolk parishes, is undoubtedly of wider significance.

[3] A. N. Savin, 'History of an Eastern Manor', *Collection of Papers in honour of M. K. Lubavsky* (Moscow, 1917). A. N. Savin, 'History of Two Manors', *Journal of the Ministry of Public Education* (April 1916) (in Russian). In the Public Record Office A. N. Savin discovered rentals, surveys and enclosure awards of the manors Brampton, Hunts; Barton and Barrow on Humber, Lincs., and a number of other similar sources.

[4] See E. A. Kosminsky and V. M. Lavrovsky, 'Brampton Manor in the 11th–18th Centuries', Collection *Sredniye Veka*, II (1946); Lavrovsky, 'History of Land Relations in Barrow Manor, Lincolnshire', *Izvestia of USSR Acad. Sci.* III, no. 3 (1946); Review by C. Hill, 'Prof. Lavrovsky's Study of a 17th Century Manor', *Econ. Hist. Rev.* XVI (1946), 125–9; Lavrovsky, 'Distribution

This is based on a more thorough study and statistical treatment of the manorial surveys, rentals and enclosure awards of *only* three manors (Brampton, Barton and Barrow). It should be observed, however, that the percentage of peasant holdings in these manors by the late eighteenth and early nineteenth centuries (Brampton, Hunts—5·7 per cent, E.A. 1780; Barton upon Humber, Lincoln—23·8 per cent, E.A. 1797; Barrow on Humber—39·7 per cent, E.A. 1803) allow these manors to be classified in three different groups: (1) a group in which the peasantry were almost extinct by 1780 (Brampton); (2) a group in which the percentage of peasant holdings was near the average of 22·5 per cent for all the sixty manors previously studied (Barton) by 1797[1] and (3) a group in which the peasantry was still numerous, almost 40 per cent of peasant holdings (Barrow in 1803).[2]

These percentages represent the results of the changes in these three manors which took effect by the end of the eighteenth and beginning of the nineteenth centuries. The initial stages in the development of land and rental relations in Brampton, Barton and Barrow Manors are exhibited in the sixteenth to seventeenth century rentals and surveys. A statistical analysis of these sources allows us to establish a functional relationship between the development of rent on the one hand (from the feudal, ordinary through the 'improved' to capitalist rent) and the process of expropriation of the peasantry in these three manors.

Fig. 1 presents a graphic illustration of the relation between the change in the forms of ordinary rent paid by the different categories of landholders—the change through 'improved' rent to capitalist rent—and the sharp reduction in the percentage of peasant landholdings from the late sixteenth to the late eighteenth centuries. In Brampton Manor capitalist rent triumphed and the peasantry had disappeared almost entirely by the 1780's.

The Manor of Barrow presents an entirely different picture as Figs. 2 and 3 illustrate. There is an undoubted connexion between the unsuccessful attempts undertaken in the 1630's to 'improve' the rents, to pass over to capitalist rent and the survival of a high percentage of peasant landholdings up to the early nineteenth century. Following the bourgeois revolution of the 1640's the 'improved' rent deteriorates to the level of ordinary rent and, as a result, we see a considerable rise rather than a decline of the percentage of peasant landholdings by 1803.

In the third manor—Barton—no decisive attempts to 'improve' the rent have found reflexion in our sources. Here, as we know, the percentage of peasant landholdings remains close to the average throughout all the 16 parishes and manors up to the end of the eighteenth century. There can be no doubt of the connexion (although it is less clearly defined than in the preceding two cases) between the survival of the ordinary rent and the very small reduction in the percentage of the peasant landholdings in the late sixteenth to the late eighteenth centuries. A further investigation is required of the documents of this manor with its close-to-average percentage of peasant landholdings.

of Land Holdings and Forms of Land Rent in England in 16th–18th centuries', *Izvestia USSR Acad. Sci.* v, no. 2 (1948); Lavrovsky, 'To the Question of the Differentiation of the English Peasantry in the 1630's–1680's', Collection *Sredniye Veka*, VIII (1956) (in the press, translated into English: 'Differentiation of the English Yeomanry in the 1630's–1680's').

[1] See Lavrovsky, *op. cit.* Table IV, pp. 77–9.

[2] See 'Maps of Parliamentary Enclosures of Common Lands in England in the Late 18th-Early 19th Centuries', Supplement to the book Lavrovsky, *op. cit.* p. 3.

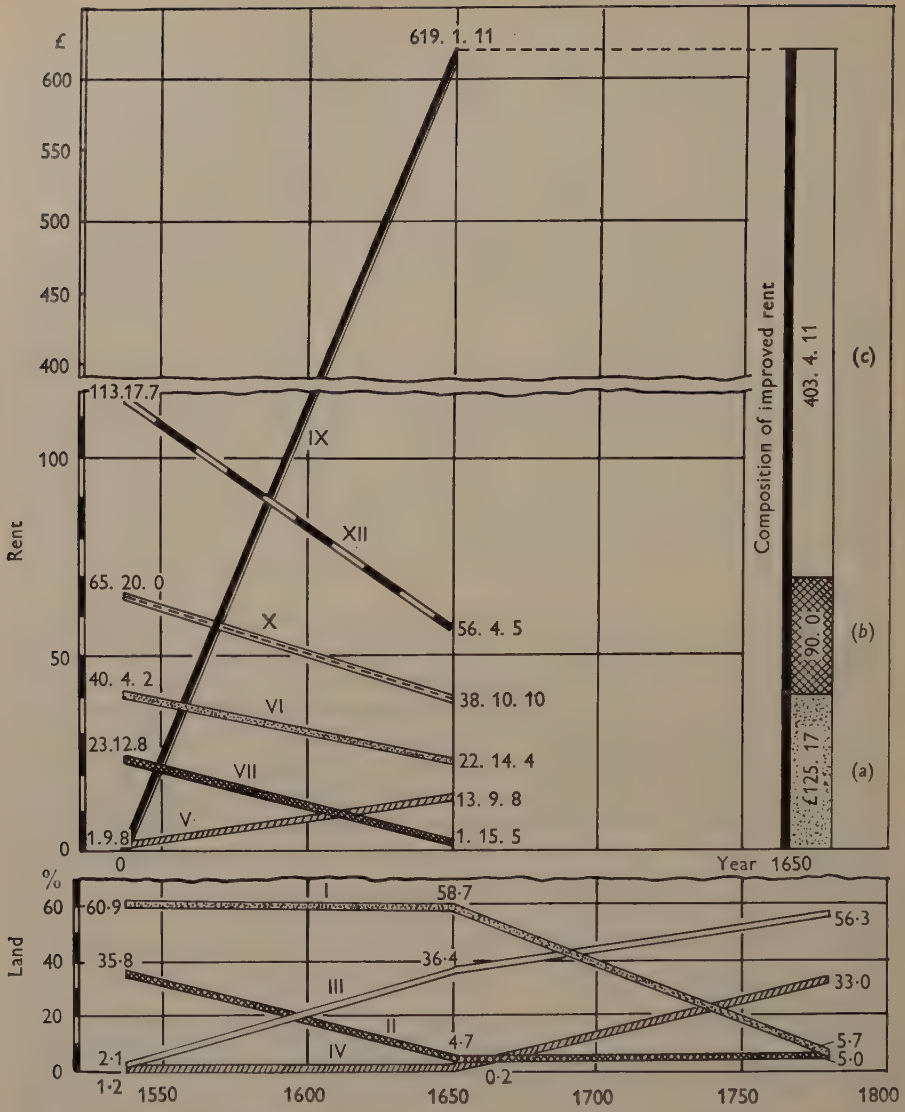

Fig. 1. Ordinary rent changes to capitalist rent by the middle of the seventeenth century. The peasantry has almost disappeared by the 1780's (enclosure award of Brampton, Hunts). For key see p. 282.

III

It should be observed that the surveys, rentals and enclosure awards on which the figures are based are not only an extremely important source of information, but present a number of serious difficulties for the investigator. The greatest of these difficulties is due to the fact that the data on the size of the peasant holdings and rental payments in the sources is not uniform. Sometimes the sources give the size of the peasant landholdings, at other times they record the ordinary, 'improved' or capitalist rental payments. Sometimes again they contain both kinds of information: about the landholdings and about the rent. By carefully analysing and comparing all the data on the size of landholdings and rental payments we were able to arrive at a possible ratio of rental and land

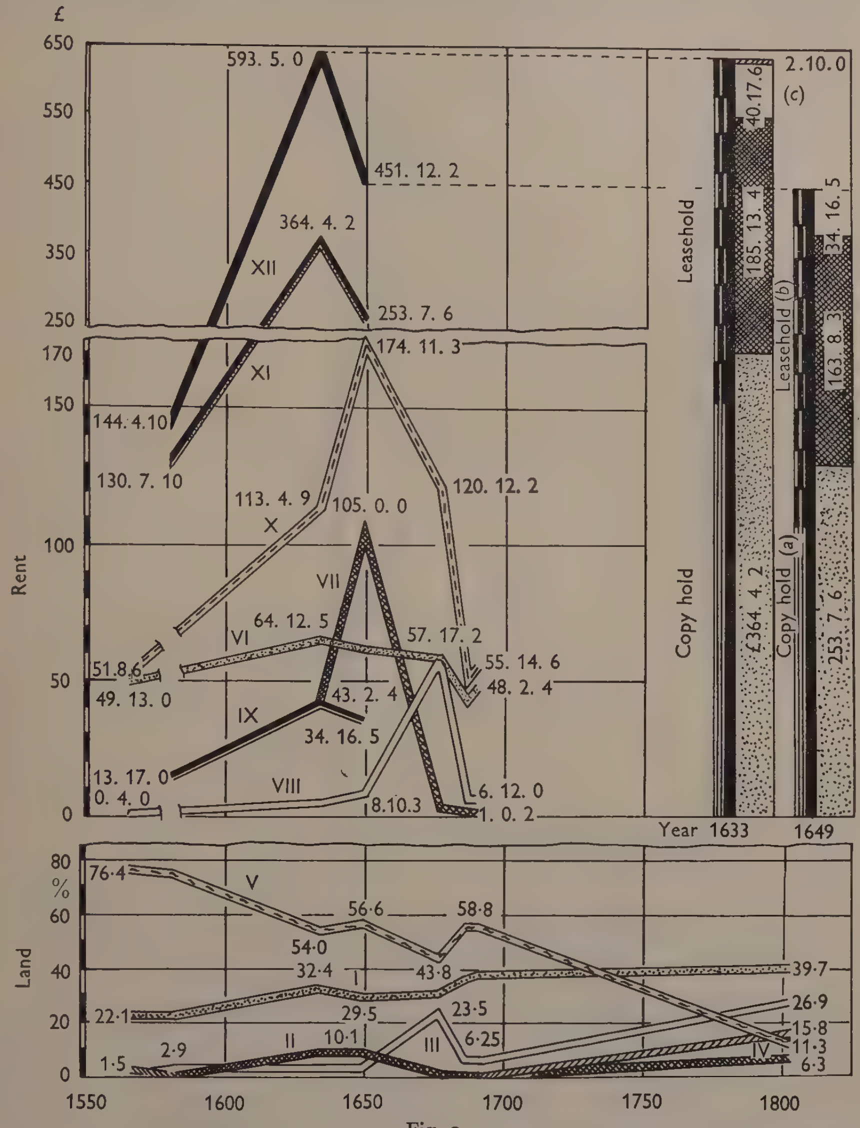

Fig. 2

Figs. 2 and 3. Unsuccessful attempts to pass over to capitalist rent in the seventeenth century and the survival of a high percentage of peasant landholdings up to the early nineteenth century (enclosure award of Barrow, Lincoln). For key see p. 282.

indices, and hence to subject both to statistical treatment and to compute curves of peasant landholdings. These curves are, it seems, sufficiently well founded and appear to the author at any rate, convincing enough to bring out the interdependence of the different factors of land relationships in England in the period under investigation. Of course, the conclusions are of a purely hypothetical character and require checking by the material of similar sources relating to other manors. It goes without saying that the accuracy of the results of the calculations and the diagrams based on them is by no means to be overestimated.[1] Nevertheless selective-statistical or monographic-statistical

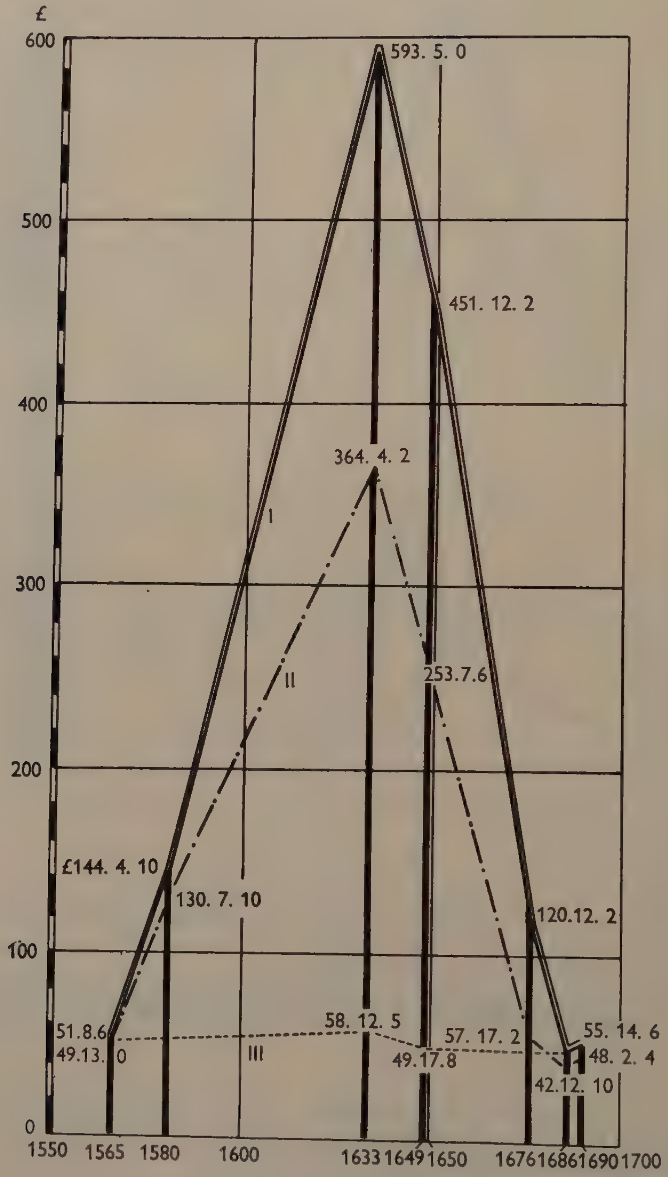

Fig. 3. For key see p. 282.

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[1] In defining the method of statistical calculations of the materials of medieval surveys E. A. Kosminsky refers to A. N. Savin whose splendid work on 'Valor Ecclesiasticus' served as an example for Kosminsky himself: '...those who occupy themselves with tedious calculations aim only at probable and approximate conclusions or at elucidating a prevailing tendency, but

investigation is the only possible way of studying sources of this type. There is and can be no other way of assimilating and utilizing the extremely rich and valuable material which they contain and which is so important for an understanding of the essentials of land and rental relationships and their interdependence. It is necessary, however, to avoid the danger of exaggerating the statistical 'method', of transforming it from a means of knowledge to an aim in itself. On the contrary, the methods of statistical analysis must be coordinated with and subordinated to the tasks and fundamental problems of the Marxist-Leninist scientific cognition of the laws of agrarian-historical development.

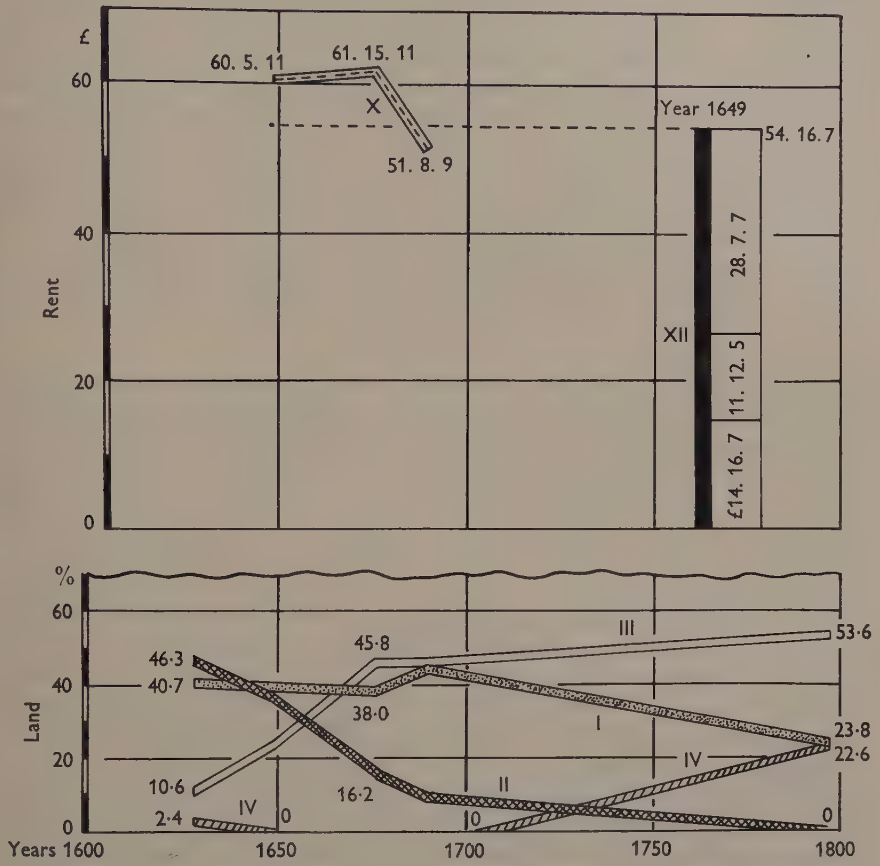

Fig. 4. The rent is in the main ordinary; the average percentage of peasant landholdings is maintained (enclosure award of Barton, Lincoln). For key see p. 282.

The essence of the problem of the differentiation of the peasantry becomes clear only if we understand it, not in the sense of mere simple inequality of property,

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they know of no shorter and more trustworthy way to their aim than wearisome computations' (see *English Village in the 13th Century*, p. 63, reference to Savin. See *Istoricheskiye Izvestia* (1916)).

In the majority of cases figures give an inaccurate and conditional answer to the questions we pose. The conclusions bear a *conditional* character, and require checking and confirmation on other material (*loc. cit.* p. 65). An excellent example of such a check-up which confirms the accuracy of Kosminsky's computations is furnished by the statistical treatment of the same source—*Rotuli Hundredorum* by M. A. Barg, his pupil.

but as the capitalist disintegration of the old peasantry. In the process of 'differentiation', the peasantry becomes completely disintegrated and is squeezed out by new types of rural population, which form the basis of a society with a predominant commodity economy and capitalist production (Lenin). The laws of development of capitalism in agriculture in the English village in the sixteenth to eighteenth centuries lead to the 'depeasantization' of the village which found expression in the appearance of 'new types' of rural population. At the one extreme there establishes itself the rural bourgeoisie, the wealthy peasantry, the *kulak* elements of the village; on the other extreme, the agricultural proletariat, the class of hired labourers with land allotments.[1] We are thus dealing not with the expropriation of the peasantry as a whole, which Marx regarded as the *basis* of primitive accumulation, but with a *differentiation* of the peasantry in Lenin's sense of the term.

The sources allow us to adumbrate three variants of the possible evolution of agrarian relationships in the seventeenth to eighteenth centuries.

IV

(1) The figures of Brampton show that the percentage of peasant landholdings, which was sufficiently stable in the sixteenth and the first half of the seventeenth centuries fell off rapidly in the period 1650–1780. By the 1780's we see in Brampton a well-defined land monopoly of the big landowners (gentry, nobility, tithe impropriators) and the expropriation of the peasantry who retained only 5·7 per cent of the total land subjected to parliamentary enclosure. The other diagrams demonstrate a definite relation between the passage from ordinary rent to 'improved' and capitalist rent and an abrupt decline in the percentage of landholdings after the bourgeois revolution (in the period 1650–1780). These diagrams also bring out the character of the differentiation of the Brampton peasantry and the change in the relative importance of the different groups of the peasantry throughout the period under consideration: a sharp reduction in the total area of peasant landholdings in this manor is accompanied by the disappearance of the big peasants toward the end of the eighteenth century, by the decline in the 'specific weight' of the middle peasants and the concentration in the hands of the small and poor peasantry of 77 per cent of the total area of peasant landholdings in Brampton (see Fig. 2).[2]

(2) Of essentially different character is the process of the partial expropriation of the peasantry in Barton, the Lincoln manor for which a number of seventeenth-century surveys and the parliamentary enclosure award of 1797 are available. The peasant landholding in this manor is quite stable throughout the entire seventeenth century and declines almost by one half by the end of the eighteenth century. In the 1630's, on the eve of the bourgeois revolution, the big peasants predominated in Barton. Middle, small and poor peasants were almost non-existent in this manor. We see an entirely different picture in the survey of 1649–50 and the rentals of 1676–90. The percentage of holdings of the big peasants falls drastically in the decade following the bourgeois revolution of

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[1] V. I. Lenin, *Collected Works*, III, 142, 144–5.

English historians frequently misuse the Russian term 'kulaks', the application of which cannot be justified either to the 13th–14th or the 15th centuries. See E. A. Kosminsky, 'Evolution of the forms of feudal rent in England in the 11th–15th Centuries', *Voprosi istorii*, no. 2 (1955), 554. The term 'kulaks' belongs to another period, when new economic laws take effect, the laws of the development of capitalism in agriculture.

[2] V. M. Lavrovsky, 'Differentiation of the English Peasantry in the 1630's–1680's', *loc. cit.*

the 1640's, and small and middle peasants come to the fore (about 80 per cent of the total area of peasant holdings). Only by the end of the eighteenth century (in 1797 the date of the enclosure award) do the *kulaks* again take first place, but they still own a smaller percentage of peasant landholdings than the groups of middle and small peasants taken together.

To what are we to attribute the relative stability of the peasant holdings in Barton up to the late eighteenth century and the importance of the middle and small peasants in this manor? This is evidently to be explained in part by the fact that here, in distinction to Brampton, attempts were made in the seventeenth century to 'improve' the rents and pass decisively to the system of capitalist rent.

(3) Barrow manor, Lincoln. For this manor we have the greatest number of rentals and surveys of the sixteenth and seventeenth centuries and the enclosure award of 1803. The peasant holdings reveal a definite tendency of growth from 1565 to 1803. On the other hand, the holdings of the Crown and the nobility fall off drastically in the same period. The development of rental relationships in the domain observed in the 1630's to 1670's and the attempts to pass over to 'improved' and capitalist rent in Barrow proved of comparatively short duration and were unsuccessful in the seventeenth century. We have here one of the conditions of the increase in the percentage of peasant holdings in the manor.

On this manor the rentals and surveys of the sixteenth to seventeenth centuries present an exceedingly complicated picture. However, the basic tendencies in the relative sizes of the different groups of the peasantry—big, middle, small and poor—in the pre- and post-revolutionary decades stand out sufficiently clearly. In the period 1565–1633 the big peasants predominated (up to 63–70 per cent of the total area of peasant holdings). This ratio changes radically in the period 1649–86: the big peasantry rapidly declines in number and disappears from the manorial surveys and rentals of these decades, to appear again only in the enclosure award of 1803. On the other hand, in the rentals of the 1670's to 1680's the middle and small peasants come to the fore and fully predominate. In the eighteenth century the specific weight of these two groups again declines. Nevertheless, according to the enclosure award, the middle and small peasants retain up to 69·7 per cent of the total area of peasant holdings, that is, they predominate in Barrow manor by the beginning of the nineteenth century.

The analysis of the manorial surveys, rentals and enclosure awards of the above-mentioned three manors permits us, in our opinion, to draw the following conclusions. First, it is apparent that the history of the peasantry as a whole and the change in the 'specific weights' (percentage of landholdings) of the separate groups of the peasantry do not coincide. The relative percentages of the big, middle, small and poor peasants differ greatly on the eve of the revolution of the 1640's, during the revolution and in the century following it. Secondly, it is perfectly clear that the revolutionary period and the following decades are marked by extremely important changes in the distribution of land among the various classes of landowners and the various groups of peasant-type proprietors. But all these sources taken together reflect the important changes that occur in the English village in the sixteenth to eighteenth centuries, and particularly in the revolutionary decades.[1] These changes reflect the virtual upheaval in the land relationships in the village and the decisive changes in the relative importance of the different groups of the peasantry which took place in the 1640's to 1680's and after the uprising of 1688–9, as well as in connexion with the parliamentary enclosures. These enclosures multiplied from the 1760's onwards and especially during the wars with revolutionary and Napoleonic France and the continental blockade. The 'curves' illustrating the change in the specific weights of the different groups of peasants vary in the groups of manors differing in the percentage of landholdings preserved by the late eighteenth to early nineteenth centuries. In assessing these curves it is necessary also to take account of the peculiarities in the development of land relations in the different manors and the presence of certain common traits.

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[1] Compare the viewpoint expressed by Hugh Trevor-Roper in his paper 'La révolution anglaise de Cromwell' in *Annales: économies, sociétés, civilisations*, IX (1955), pp. 331–40. This historian denies the significance of any changes, whether political, ideological or economic connected with the English revolution of the 1640's to 1650's.

The conclusions offered here are, of course, of a purely preliminary and hypothetical character and require checking on the rentals and surveys of a considerably greater number of manors, if only to begin with, on the sixty parishes and manors whose enclosure awards I studied in 1925–6.

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KEY TO FIGURES

Fig. 1

I	Peasant owners.
II	Landowners designated by prefix 'Mr'.
III	Landownership of the nobility and gentry.
IV	Ecclesiastical landownership, including the impropriators.
V	Customary rent of ecclesiastical landowners.
VI	Customary rent of peasant landowners.
VII	Customary rent of owners designated as 'Mr's.
IX	Improved rent.
X	Totals of customary rents.
XII	Total revenues of manors. *a*, *b*, *c*: distribution of improved rent among different groups of tenants: peasants, 'Misters', Gentry.

Fig. 2

I	Peasant owners.
II	Landowners designated by prefix 'Mr'.
III	Landownership of the nobility and gentry.
IV	Ecclesiastical landownership, including the impropriators.
V	Royal domain.
VI	Customary rent of peasant landowners.
VII	Customary rent of landowners designated as 'Mr's.
VIII	Customary rent of nobility and gentry.
IX	Improved rent of nobility and gentry.
X	Totals of customary rents.
XI	Improved peasant rents.
XII	Totals of improved rent. *a*, *b*, *c*: distribution of improved rents among different group of tenants.

Fig. 3

I	Improved rent of all tenants.
II	Improved rent of peasant landowners.
III	Customary rent of all tenants.

Fig. 4

I	Peasant landowners.
II	Landowners designated as 'Mr's.
III	Landownership of the crown, the nobility and the gentry.
IV	Ecclesiastical landownership, including impropriators.
X, XII	Unimproved rent.

FLUCTUATIONS IN BUILDING IN GREAT BRITAIN, 1785–1849[1]

BY A. K. CAIRNCROSS AND B. WEBER

OUR knowledge of early fluctuations in the building industry rests largely on the figures of brick production in England and Wales between 1785 and 1849 to which Shannon drew attention in 1934.[2] These figures have recently been further analysed by Matthews who has shown that the fluctuations between 1832 and 1843 followed a different pattern in different parts of the country.[3] Neither of these writers analyses the fluctuations in Scotland nor makes use of the figures available for a shorter period for London; and neither they nor other recent students of the early trade cycle in Britain compare the figures for bricks with those that exist for other building materials, notably glass, slates, tiles and timber. It is the purpose of this article to remedy these omissions, and to discuss how far the various series can be used as indices of residential building, fluctuations in this sector of the industry being at times markedly divergent from fluctuations in non-residential building.

I

The data available

The series for brick production used by Shannon was extracted from the Customs House records showing the number of bricks charged to excise duty in England and Wales from July 1784, supplemented from 1840 (when the manuscript records cease) until 1849 (when the duty on bricks was repealed) by the figures given by Porter.[4] For the years before 1817 the only figures available, whether for bricks charged to duty or revenue collected, are for the twelve months ending 5 July. For the years between the middle of 1816 and the end of 1840, the figures are available quarterly, but as output in the first and last quarters of the year was apparently negligible, the quarterly figures are of little intrinsic interest. For the years 1840–9 the published figures are for calendar years.

For Scotland, it is possible to extract similar data from the Scottish Excise Revenue Accounts in the Register House, Edinburgh. These do not give figures by calendar year until 1826 but it is possible to obtain calendar year figures back to 1818 from another source.[5] For London, the Customs House records give quarterly figures of bricks charged to duty from the middle of 1816 to the end of 1840, and although the series cannot be continued thereafter, the published returns of duties paid on bricks in London from 1829 to 1849 make it easy to arrive at a fairly precise estimate since rates of duty did not change over that period and all but a tiny proportion of the bricks produced were common bricks carrying the same rate of duty. Similar figures for those years are available for each collection centre in England, Wales and Scotland; and for the ten years 1836–45 there are also figures by county both of bricks charged to duty and duty collected.

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[1] This article was in draft at the time of Mr Weber's sudden death in June 1955. He had gone over the manuscript to prepare it for publication and we were due to discuss his amendments on the day he was removed to hospital. The text incorporates all the proposed changes of which he left a written record.

[2] H. A. Shannon, 'Bricks—a trade index', *Economica* (N.S.), 1 (1934), 300–18.

[3] R. C. O. Matthews, *A study in trade cycle history* (1954), pp. 113–18.

[4] G. R. Porter, *Progress of the Nation* (1851 ed.), p. 538.

[5] Excise Return, Parl. Papers, 1830 (194), xxv (63).

An even longer series exists for glass. The duties on glass go back to 1746 and were not repealed until 1845. These duties, together with the window tax, limited the use of glass in house-building; they were high and increased on several occasions; there was a good deal of evasion; and only a limited proportion of the glass produced was window-glass. Thus figures of glass consumption, and still more, figures of glass production, are of limited value as indices of house-building or of constructional activity.

For crown or German sheet glass, which was used for the finest qualities of window glass, the series for glass charged to duty in England and Wales is available from July 1777 to July 1840 from the Customs House records, at first on an annual basis but quarterly after 1816. Similar figures exist for flint glass, plate glass and bottle glass, the latter being much the largest item in the total. Out of the total consumption of glass in the United Kingdom in the early 1840's nearly half was bottle glass, crown and sheet glass taking about 25 per cent, flint glass 20 per cent, and plate glass 5 per cent. Figures for glass charged to duty in Scotland are given in the Excise Revenue Accounts for the period 1785–1833, on a calendar year basis from 1826 and on a mid-year to mid-year basis for the earlier period. It should be possible to continue this series to 1845 and the amounts of duty collected can be taken back to 1781.[1] Production in Scotland of crown and sheet glass was insignificant in the early 1780's, rose rapidly to a peak in 1813 when it represented one-third of British output, and seems to have faded out again after 1830. There was no production of glass in London and no regional figures within England and Wales are available.

Since glass could be, and was, transported on a scale much larger than bricks, the figures of production are less useful indices of building activity than are the figures of consumption. A series showing consumption of each of the main kinds of glass in Great Britain from 1789 to 1844 is included in Porter's *Progress of the Nation*.[2] This series overlaps with, and in the earlier years, diverges slightly from, the official figures of consumption in the United Kingdom.[3]

For present purposes, only the series for crown and sheet glass will be used; flint glass, which was used mainly for glassware, shows a steeper rise while broad glass shows a declining trend in the early years and no upward trend in the second half of the period.

A valuable series for slates extends from 1811 to 1829. A customs duty on sea-borne shipments of slates and stones was imposed in 1794, the duty on stones being repealed in 1823 and that on slates in 1831. Unfortunately the records relating to the years before 1811 were destroyed in the Customs House fire of 1814. This robs the series for stone of most of its interest since it covers only ten years, although there appear to be figures for individual ports extending over a longer period. The figures for slates relate to duty collected in England and Wales and in Scotland, not to physical quantities, and there were changes in duty on three occasions: first in 1814 when the duty was reduced from £35. 4*s.* per £100 *ad val.* to £26. 8*s.*; then in 1823 when duties by weight were substituted; and finally in 1827 when the duties on Scottish slates were reduced. The two later changes in duty seem to have had little effect but the reduction made in 1814 produces a break in the series in that year. It is also apparent from inspection that Scottish slates were losing ground to Welsh slates and that only the figures for Great Britain as a whole can be used as an index of building activity.

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[1] Thirteenth Report of the Commissioners of Excise Inquiry (Glass). The figures diverge in some years from the similar figures in the Excise Revenue Accounts in Edinburgh.

[2] G. R. Porter, *Progress of the Nation* (1847 ed.), p. 257.

[3] See, for example, 'A return of the quantities of each kind of glass retained for home use...in each year from the 5th day of January 1813 to the 5th day of January, 1843' (Parl. Papers, 1843 (173), xxx, 4). The same series appears in other Parliamentary Papers for a shorter run of years.

The series for tiles charged to duty runs from 1784 to 1833, for years ending 5 July up to 1825 and by calendar year from 1818 onwards. There are figures for England and Wales, London (from the latter half of 1816 only) and Scotland, and for the first two the totals can be sub-divided after 1816 to show plain tiles, pan and ridge tiles and various other kinds of tile separately. The cyclical fluctuations in each group follow a common pattern, but there is a downward trend in plain tiles and no very pronounced trend in either direction in the other groups. The total for all tiles, unlike the total for other materials, shows no upward trend over the whole period of fifty years for which it is available.

Finally, there are figures of timber imports. The most useful of these relates to imports of fir timber and runs from 1788 to 1841. Since timber is widely used outside the building industry, can be stocked for long periods, and is not exclusively obtained from abroad, the figures are less reliable guides to turning-points in building than are some of the other series but provide a check on general trends.

II

Fluctuations in building materials

Fig. 1 shows the fluctuations that took place in each of the following series:

Bricks: Quantity charged to duty in Great Britain, 1785–1849.

Glass: Quantity of crown and German sheet glass retained for home consumption, 1789–1844 (Porter).

Slates: Duty collected on sea-borne shipments from British ports, 1811–29.

Tiles: Quantity charged to duty in Great Britain, 1785–1832.

Timber: Quantity of fir timber imported, 1788–1841.

There is a general similarity in the movement of all the series. A rise beginning early in the 1780's seems to have been checked in 1788 or 1789 and, when resumed, continued until 1793 or 1794. From then until the next trough in 1799 there was a gradual fall, temporarily checked in 1796. This cycle of about eighteen years was followed by a second of the same length with a fresh trough in 1816 or (less probably) in 1817. There was no clear intervening peak but instead a high plateau stretching from about 1803 to 1813. After 1826 the cycles become more clearly marked, the peak years being 1819, 1825, 1836 and 1847, and the troughs in or near 1821, 1832 and 1842. While this pattern can be traced from the various series, there are important divergencies in detail between them. It would seem unwise, therefore, to rely entirely on any one series as an indicator of building activity. Of all the series, that for bricks is undoubtedly the most satisfactory, and the other series are of interest chiefly as a check on it.

In the period before 1815 the timber series is more erratic and the tile series more sluggish than that for bricks but the glass series follows it fairly closely. There is a slight upward trend over this period in each of these materials except timber, imports of timber being limited by the war. For this period there is little reason to modify the impression of building fluctuations conveyed by the figures for bricks, all the more as the figures for Scotland follow the same pattern as those for England and Wales.

After 1815, the brick figures show a less sharp drop to the trough of 1816 than do the figures for slates and glass, but thereafter the curves are parallel until after the 1825 boom. The one exception is the curve for tiles which rises no higher in 1825 than in 1819; even if pantiles are taken separately, they show only a modest increase between the two peaks. Thus the series for tiles differs from the others in trend as well as in amplitude, production rising less and fluctuating less.

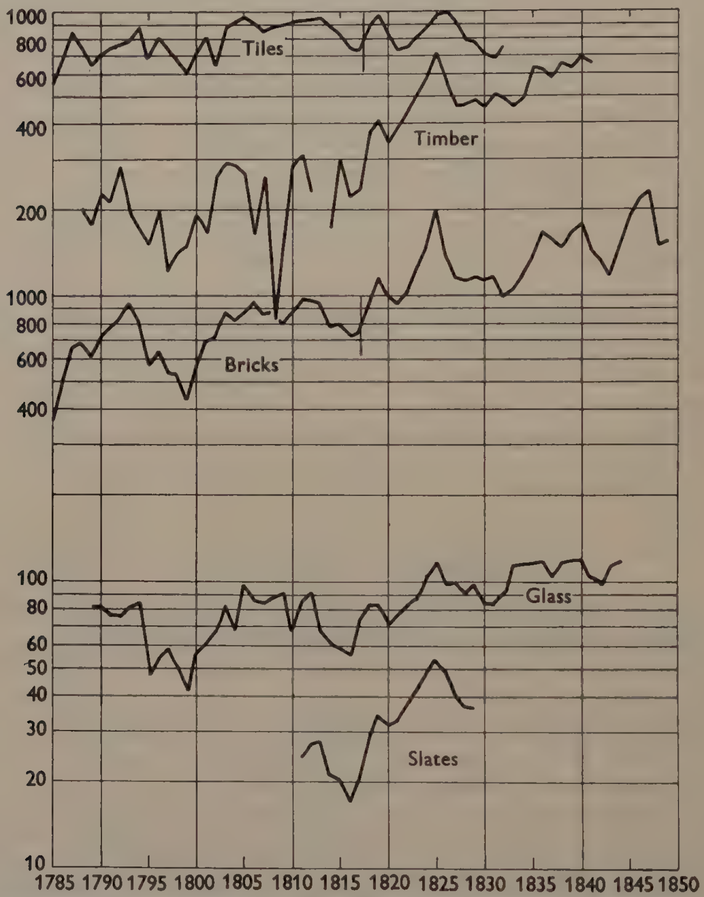

Fig. 1. Building materials in Great Britain, 1785–1849 (calendar years and years ending 5 July). For units, see Appendix.

The reaction from the boom of 1825 was sharper in bricks than in the other materials and the year-to-year fluctuations diverge from those in tiles and glass. When the next peak came in 1836, neither brick production nor glass consumption nor timber imports recovered to the level of the previous boom. The figures for glass and timber bear out the impression left by the series for bricks that building did not fall off greatly after 1836 and that it was not until after 1840 that there was a real slump in building.

III

Brick production and house-building

The brick figures are sometimes used to indicate the movement of house-building. They are, however, by no means a reliable index of house-building, though they may be a better measure of building activity as a whole. Non-residential building was quite large enough and variable enough to exercise a dominant influence on occasion on the course of brick production. That this must have been so may be seen by comparing brick production with the net increase in the stock of houses between Census dates. The Census data are crude as they take no account of demolition and conversions of houses to other uses, and as there was no generally applicable definition of a house.[1] They may, however, be used as a rough indicator of house-building activity over long periods. The two sets of figures for England and Wales are set out in Table 1.[2]

Table 1. *Brick production and the net increase in housing stock in England and Wales, 1801–51*

	1801–11	1811–21	1821–31	1831–41	1841–51
Average brick output (millions) (*a*)	811·6	859·0	1230·9	1336·8	1583·7 (*b*)
Percentage increase		+5·8	+43·4	+8·6	+18·5
Net increase in housing stock (000)	215·1	309·3	443·5	515·7	314·3
Percentage increase over previous decade		+43·8	+43·4	+16·3	−39·0

(*a*) Averages for each decade. (*b*) Average for 1841–9.

Comparison of the increases by decade suggests that in 1811–21 house-building increased very much faster than 'other building', but that in the following decade 'other building' and house-building increased at practically the same rate. This conclusion is supported by the figures of duty collected on sea-borne shipments of slate, which show a rapid increase (allowing for the reduction in duty in 1814) over the first decade and little or no increase in the second. It is also in agreement with the findings of Rostow, Gayer and Schwartz, who point out that 'the sharp increase in brick production to 1818 was not accompanied by very substantial increases in other types of internal investment that can be traced statistically. It is probable that the brick increase resulted from a post-war housing boom.'[3]

The period 1822–6, on the other hand, was characterized by a very high volume of private and public investment,[4] of which a large part involved new building activity other than houses. At the same time the residential construction boom continued undiminished.

In the 1830's house-building increased at a considerably lower rate than in the 1820's (the 'second differences' of the housing stock fell from 134,000 in 1821–31 to 72,000 in 1831–41) but the rate of increase in brick production was smaller still. House-building again commanded a larger share of brick production although the relationship to other building was much closer than in 1811–21.

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[1] Prior to 1851 the definition of a 'house' was left to the discretion of the enumerators.

[2] The Scottish figures have been omitted since the estimate of housing stock in the 1841 Census is not comparable with that in the Censuses of 1831 and 1851.

[3] Rostow, Gayer and Schwartz, *The Growth and Fluctuation of the British Economy, 1790–1850* (1950), II, 704. See also Shannon, *loc. cit.* pp. 301–3.

[4] *Ibid.* I, 185–92.

The really striking discrepancy between the brick index and house-building, however, occurs in the 1840's. Brick output increased by 18·5 per cent, compared with 8·6 per cent in the 1830's, but fewer new houses were built. The housing stock increased by 314,000 houses in 1841–51, compared with an increase of 518,000 in 1831–41—a fall of nearly 40 per cent.

It is likely that the net increase in the Census number of houses underestimates the number of houses built in this decade more than in the preceding decades, largely on account of the greater volume of demolitions which accompanied railway construction in the railway mania. Some allowance must also be made for the introduction of a uniform definition of a 'house' in the 1851 Census as well as for other shortcomings of the data. But even so, it is difficult to see how the volume of house-building in the 1840's could have approached the level of the 1830's and 1820's. It is reasonable to conclude, therefore, that the 1840's were a period of *relatively* little house-building and that a much larger share of the output of bricks was absorbed by other construction and especially by railway-building.

IV

Regional variations

The figures of brick production make it possible to trace the fluctuations in building in different parts of the country. For the twenty years before 1849 this can be done by making use of the figures of duty paid at each of the collecting centres; from 1817–49 there are figures by calendar year of brick production in London; and for Scotland there are figures throughout the entire period from 1784 to 1849.

(*a*) *Scotland*

It is sometimes supposed that since Scotland used stone rather than brick, figures of brick production would be of limited value as an index of building activity in Scotland.[1] But the production of bricks in Scotland was not negligible; it lay between 2 and 3 per cent of production in England and Wales almost throughout the period. The trend of production in the two countries was very much the same, with a slightly steeper climb in Scotland. Nor was production concentrated in a limited area, for bricks were produced in twenty different counties, with Lanarkshire (including Glasgow) accounting for about half the total output. It is possible that bricks were used to a greater extent for industrial purposes in Scotland than in England and Wales; but there is no evidence that this was so.

Fig. 2 compares the movement of the series for Scotland with that for England and Wales. The two move in very close agreement. Both show peaks in 1787–8 and again in 1792–3 but the reaction in the next two years seems to have been much more severe in Scotland. Recovery began in 1795–6, as in England, was checked in 1797–8, a year later than in England, and reached a fresh peak, again as in England, in 1802–3. Thereafter, production remained at a higher level, following the English series closely until 1810–11 when both series show a down-turn. There are some divergencies between 1811 and 1819, production in Scotland falling more steeply after 1810–11, recovering more sharply in 1814–15, and dipping again in 1816–17—a year later than in England. The boom of 1819 is equally pronounced in the two series, but the swing from boom to depression and back again in the next six years was much more violent in Scotland. Between 1825 and 1836 the two series again move in parallel, with a check to recovery in 1830 and 1832 in both countries; in the late twenties production fluctuated more widely in Scotland, while in the early 1830's it rose more steeply in England. In the next cycle between 1836 and 1847, production in Scotland was again more volatile, showing a steeper upward trend and a wider amplitude of fluctuation both before and after the subsidiary peak in 1840.

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[1] Matthews, *op. cit.* p. 113 n.

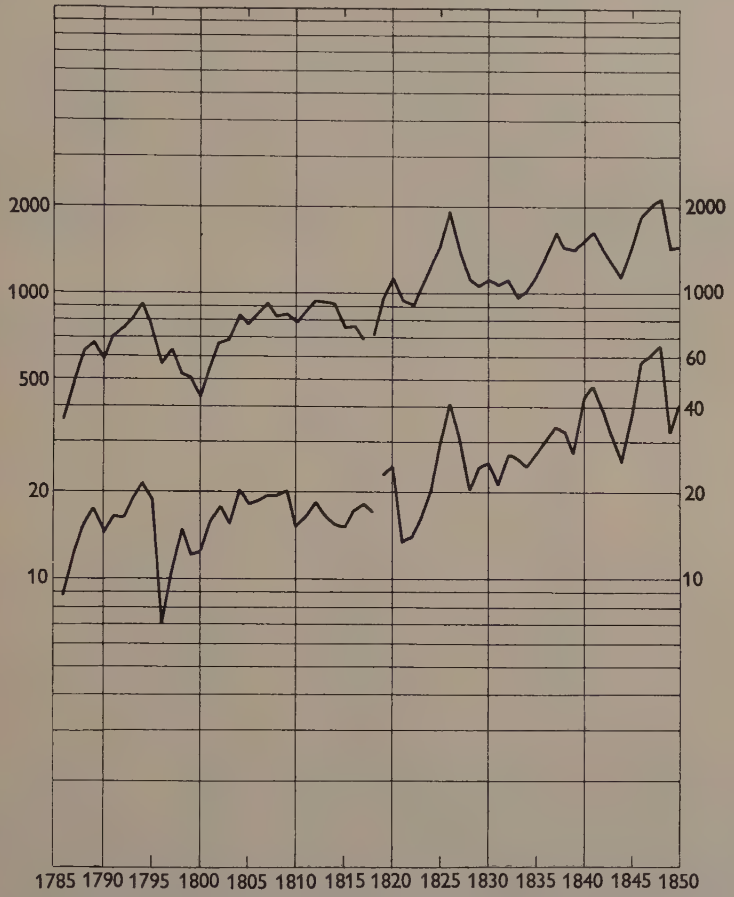

Fig. 2. Bricks charged to excise duty in England and Wales and Scotland, 1785–1849 (years before 1817 and 1818 respectively end on 5 July, thereafter they are calendar years). For units, see Appendix.

On the whole, therefore, the Scottish figures tend to show wider fluctuations—not surprisingly in view of the offsetting tendency of local fluctuations within England and Wales—but a remarkable agreement as to turning-points.

Much the same is true of tiles: the Scottish series has a wider amplitude, except in 1819 when the boom in England and Wales reaches greater proportions. The trend of the Scottish series is more distinctly upwards, and the long cycle between 1805 and 1817 is more marked in Scotland. There are also slight divergencies in turning-points during the Napoleonic Wars and a tendency for the Scottish series to lag behind the English series between 1813 and 1818. With these reservations the two series move together.

(*b*) *Liverpool*

In Lancashire there were four collecting centres: at Liverpool, Manchester, Lancaster and Wigan. There happens also to exist a series for houses built in Liverpool itself from 1838 onwards.[1] In Table 2 this series is compared with the duty collected in the same years at Liverpool.

It is clear from Table 2 that, whatever may have been the level of house-building elsewhere in the forties, there was a decided boom in Liverpool in the years 1844–6. There are reasons for supposing that Liverpool's experience was exceptional: at least two special forces operated locally to stimulate house building. The first was the impetus given to housing demand by the large-scale Irish immigration into the city; the other was the agitation for, and final implementation of, the first Building By-Law in 1846. Faced with the prospect of being tied by building regulations, the Liverpool speculative builders anticipated the By-Law and rushed up as many dwellings of the old type as possible in the period immediately preceding its introduction.

Table 2. *Excise duty paid on bricks and number of houses built in Liverpool, 1838–49*

Year	Duty paid on bricks (£)	No. of houses built
1838	15,573	1,052
1839	14,699	927
1840	15,172	1,576
1841	18,971	1,761
1842	16,510	2,027
1843	18,060	1,390
1844	27,553	2,450
1845	37,649	3,728
1846	42,503	3,460
1847	25,382	1,220
1848	9,880	656
1849	7,448	446

Comparison of the brick figures and house-building in the city gives us a glimpse of the timing of the various kinds of building activity. The upward movement in building from 1839 to 1841–2 seems to have been dominated largely by house-building. The number of houses built more than doubled between 1839 and the peak of 1842 whereas brick output increased by less than 30 per cent between 1839 and its peak in 1841. In 1843 there was an increase in brick production and a sharp fall in house-building, but from 1843 to 1845 house-building and other construction increased rapidly at about the same rate. The latter continued to rise in 1846, when house-building had already passed its peak, and the fall in 1847 was not as steep as the decline in the residential sector. House-building was therefore the first to turn from boom to slump while other construction, including railway construction, lagged behind.[2]

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[1] *The Builder*, 18 May 1867, p. 354.

[2] Year to year comparisons of this kind are, of course, affected by variations in stocks. But for a commodity as space-consuming as bricks, these were relatively limited in scope and the comparison appears valid wherever divergencies in the rate of growth were considerable.

(*c*) *London*

Fig. 3 shows the production of bricks in London from 1817 onwards, the figures for 1840–9 being estimates based on receipts from duties. The London building industry used bricks produced in adjacent centres and indeed the output of bricks in London was only about one-fifth of the output in the counties of Middlesex, Surrey, Essex and Kent. But it is possible to show that production in this larger area, during the period for which figures are available, moved in step with production in London, and the figures for London alone are likely to be a reliable index of brick consumption in the London area (see Table 3). The production of pan or ridge tiles in London from 1817–32 is also shown in Fig. 3 as an additional check on the figures for bricks.

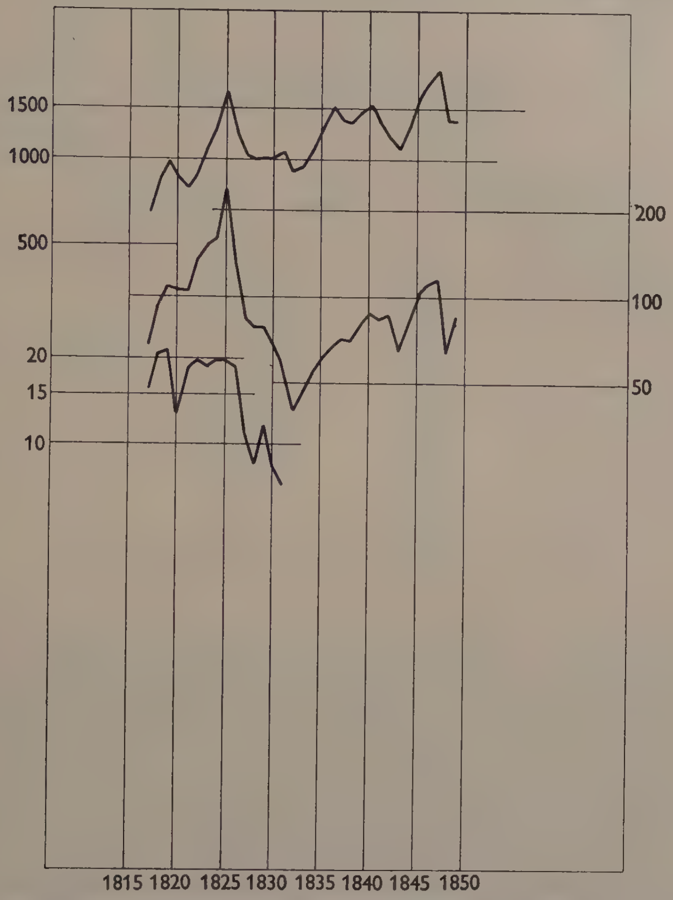

Fig. 3. Bricks charged to excise duty in England and Wales (excluding London) and London 1817–49 and pan or ridge tiles charged to duty in London, 1817–32. For units, see Appendix.

The main feature of the series for London is the extraordinarily sharp depression which followed the boom of 1825. The upswing from 1817 to the peak of 1819 was similar to that in the rest of the country. The ensuing depression in London was apparently relatively mild, although this is not borne out by the series for tiles, and it was followed by a boom of dimensions even larger than elsewhere. The reaction, however, was far more severe, and apart from a slight check in 1828–9 continued until 1832. By contrast the worst appears to have been over in the rest of the country by 1828, although a further slight fall took place before the trough was reached in 1832. The decline in London over the years 1825–32 amounts almost to a secular drop to a new and lower level of activity, so much so that even in 1847 brick production did not regain the level reached from 1822 to 1826.[1] The tile figures tell the same story.

Table 3. *Excise duty paid on bricks at London and surburban collection centres, 1822–49 (£000)*

	Collection centre			Collection centre	
Year	Essex, Surrey, Rochester and Uxbridge	London	Year	Essex, Surrey, Rochester and Uxbridge (*a*)	London
1829	54·0	23·0	1840	86·4	26·7
1830	54·1	19·5	1841	83·7	25·9
1831	45·8	17·4	1842	82·7	26·4
1832	34·5	11·6	1843	69·1	19·8
1833	38·0	13·5	1844	83·5	25·8
1834	46·8	15·7	1845	113·7	31·3
1835	60·5	17·7	1846	125·7	33·7
1836	71·5	19·9	1847	110·8	34·9
1837	70·7	20·9	1848	65·8	19·4
1838	66·0	20·3	1849	75·7	26·0
1839	72·3	23·9			

(*a*) The collection centre in Uxbridge was abolished in 1843.

There is a further divergence in 1836, the peak coming a year later in London than in the rest of the country. In 1840 the peak coincides with the peak elsewhere but production held up in 1841 and 1842 instead of falling off and the depression was confined to the single year 1843. After 1843 the London series rises rather more slowly than that for England and Wales and falls more sharply in 1848.

A further check on building activity in London in the 1830's can be carried out by making use of some annual statistics of buildings constructed in a large part of the London area in 1831–42. These are given in a parliamentary return bringing together information on building activity in districts for which District Surveyors had been appointed under the Metropolitan Building Act.[2] The function of the District Surveyors was to enforce the local building by-laws, and as the plans of most buildings had to be approved by them, the records should provide a fairly reliable index of building activity. The statistics given in the returns relate mainly to the number and type of houses (or other buildings) constructed, and the number of alterations made.

Some returns are for buildings and some for houses only, so that it is necessary to use two indices, one based on all districts for which a total is available, and one for those districts for which a separate total for houses is available. Each series relates, therefore, to a sample of London districts rather than to the whole area for which returns were made. For some districts the returns do not go back to the earlier years; these districts have been included on the assumption that building activity followed the same course there as in the districts for which the figures are available.

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[1] It is likely that after 1825 London drew more heavily on brick works situated outside the town. Some indication that this may have been so is given by Table 3.

[2] 'Metropolitan Building Act. Number of new houses built (and of what class) under the Act.' *Parl. Papers*, 1843 (420) XLVIII, 15.

The two indices are shown in Table 4 alongside an index of bricks produced in the London area. The impression left by the index of house-building is of a severe depression in the early- and mid-1830's. The index covering all building shows a much milder depression. After 1836 the situation is reversed, house-building expanding rapidly and without interruption while the recovery in total building is less spectacular but equally uninterrupted.

Table 4. *New houses and other buildings erected in a number of London districts and number of bricks produced in London, 1831–42*

	New houses	All buildings	Bricks produced (000)
1831	991	2,005	57·1
1832	614	1,640	39·8
1833	623	1,437	46·4
1834	646	1,547	53·9
1835	604	1,598	60·7
1836	657	1,534	68·4
1837	870	1,733	71·5
1838	966	2,059	69·7
1839	1166	2,232	82·0
1840	1252	2,377	88·0
1841	1594	2,533	85·2
1842	1603	2,645	86·8

Neither index tallies closely, particularly in the later years, with the index for bricks. This divergence can be explained by the difference in coverage, the brick index relating to the whole of the London area, not selected districts, and covering many important types of non-industrial building not included in the index for total building. Indeed, the latter index can probably be regarded as an alternative index of house-building since most of the buildings included are houses. On this interpretation, the years 1838–40 saw a marked increase in industrial building, followed by a sharp recession, while house-building expanded less rapidly but progressively.

V

House-building and demographic changes

A check on the course of building activity in London and elsewhere can be carried out by examining the change in the stock of houses between one Census of Population and another. Table 5 gives the figures for England and Wales and for Middlesex between 1801 and 1851.

The figures for Middlesex confirm the low level of activity in the London area in the 1830's, and they indicate that, whatever may have happened to industrial and public building, the depression strongly affected *house*-building. The net increase in the number of houses in England and Wales (excluding Middlesex) amounted to 284,000 in 1811–21, 409,000 in 1821–31 and 492,000 in 1831–41.

This suggests a rise of 44 per cent in new construction in the second of these two decades and a further rise of 20 per cent in the third. In Middlesex, the number of houses increased by 25,000 in 1811–21, by 35,000 in 1821–31 and by 23,000 in 1831–41, indicating an expansion in building during the decade 1821–31 on about the same scale as in England and Wales but a substantial fall in the thirties when building in England and Wales was still expanding. In the 1840's the position is reversed: house-building increased considerably in Middlesex but declined in England and Wales.

Table 5. *Net increase in housing stock in England and Wales and Middlesex, 1801–51 (a) (000's)*

	1801–11	1811–21	1821–31	1831–41	1841–51
Net increase in housing stock in:					
England and Wales (excluding Middlesex)	199	284	408	493	282
Percentage increase		+43	+44	+20	−43
Middlesex	17	25	35	23	33
Percentage increase		+47	+40	−34	+44

(*a*) Scotland is not included as the Census provides information for inhabited houses only.

Table 6. *Population growth in England and Wales and Middlesex, 1801–51 (000's)*

	1801–11	1811–21	1821–31	1831–41	1841–51
Increase in England and Wales (excluding Middlesex)	1135	1645	1684	1798	1704
Increase in Middlesex	136	191	213	218	310
Second differences in:					
England and Wales (excluding Middlesex)		510	39	114	−94
Middlesex		56	22	5	92

These variations in house-building reflect closely the movements of population growth and migration. The second differences of the population stock for England and Wales and for Middlesex are set out in Table 6. Except for the high figure in 1811–21 and the consequent fall in the next decade[1] the pattern of movement is the same as that for house-building in both England and Wales and Middlesex. In England and Wales there is a rise in the 1830's but a fall in the 1840's; and in Middlesex there is a fall in the 1830's but a rise in the 1840's.

The impact of these changes in population on the building industry can be brought out most strikingly by comparing the growth in the number of inhabited houses with the growth in the total stock. The first of these measures the strength of the demand for additional houses and moves in rough parallel with the growth of population; the second registers the growth in supply and is presumably dominated by new building. In Table 7 the changes in these two factors from decade to decade is shown for Middlesex and England and Wales, together with the proportion of uninhabited houses which is a measure of the balance between them.

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[1] The high figure in 1811–21 can be attributed to the demobilization and return of soldiers from abroad after the end of the Napoleonic wars.

It is obvious from Table 7 that supply fluctuated more widely than demand. In Middlesex demand rose progressively until the 1830's but the expansion in building activity was still more rapid so that during the 1820's it was far outstripping demand. In the 1830's demand remained relatively high, without showing any expansion. This allowed the stock of vacant houses to be run down to more normal proportions so that by the late thirties the stage was set for a recovery in building. In the 1840's, demand increased again and building could, therefore, swing back to about the same level as in the 1820's without creating any fresh unbalance between supply and demand.

Table 7. *Changes in stock of houses, inhabited and uninhabited, in Middlesex and England and Wales (excluding Middlesex), 1801–51*

	1801	1801–11	1811–21	1821–31	1831–41	1841–51
Middlesex						
(*a*) Increase in inhabited houses (000's)		17·7	22·4	27·5	27·2	31·7
(*b*) Increase in total housing stock (000's)		16·9	25·4	34·6	22·6	33·7
(*c*) Proportion of uninhabited houses (at end of decade) (%)	4·4	3·2	4·6	7·4	4·6	4·7
England and Wales (excluding Middlesex)						
(*a*) Increase in inhabited houses (000's)		204	268	367	434	303
(*b*) Increase in total housing stock (000's)		199	284	408	493	282
(*c*) Proportion of uninhabited houses (at end of decade) (%)	3·5	2·7	3·1	4·4	5·6	4·5

In England and Wales, on the other hand, the check to the growth in demand does not seem to have come until the 1840's, when it was far more decisive than the temporary halt in Middlesex in the previous decade. Although building more than kept pace with demand in each decade from 1811 to 1841, the rise in the proportion of uninhabited houses was relatively gentle. By 1841, however, the proportion was decidedly on the high side and the check to house-building in the 1840's must have been correspondingly severe.

It is conceivable that the slump in house-building in the 1840's reflected a squeeze executed by railway-building on the capital market and on the finance of house-building; but in the light of the discussion above, this is not a very plausible explanation. Since demand and supply kept closely in step, and demand was dominated by demographic changes, the collapse of house-building must have been due mainly to population factors that are as yet unexamined and that cannot be pursued here.

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APPENDIX

Table A

	(1) Mill.	(2) Mill.	(3) Cwt. 000	(4) £000	(5) 00,000	(6) 00,000	(7) 1,000 loads of 50 cu.ft.	(8) 00,000	(9) 00,000	(10) 00,000	(11) 00,000	(12) 00,000	(13) 00,000
1785 (*a*)	367·6	—	—	—	573·0	—	—	88·1	—	12·6	—	—	—
1786	508·2	—	—	—	700·4	—	—	125·5	—	16·6	—	—	—
1787	650·9	—	—	—	854·5	—	—	150·9	—	24·6	—	—	—
1788	685·5	—	—	—	766·7	—	205	172·8	—	23·2	—	—	—
1789	604·7	—	81·4	—	659·0	—	179	144·4	—	20·0	—	—	—
1790	727·5	—	81·3	—	710·0	—	230	163·1	—	19·9	—	—	—
1791	766·0	—	76·2	—	760·1	—	217	160·9	—	19·1	—	—	—
1792	827·3	—	75·6	—	770·6	—	289	193·0	—	21·6	—	—	—
1793	930·6	—	80·2	—	791·6	—	200	217·1	—	24·8	—	—	—
1794	806·2	—	83·9	—	882·9	—	172	185·1	—	33·3	—	—	—
1795	566·4	—	47·9	—	697·8	—	151	71·1	—	17·4	—	—	—
1796	643·5	—	53·5	—	822·1	—	204	104·7	—	19·9	—	—	—
1797	532·6	—	58·2	—	739·9	—	122	148·8	—	22·2	—	—	—
1798	528·9	—	50·8	—	688·6	—	143	121·5	—	21·1	—	—	—
1799	433·5	—	41·6	—	606·2	—	151	122·0	—	23·6	—	—	—
1800	559·0	—	55·8	—	726·6	—	194	158·9	—	27·8	—	—	—
1801	692·6	—	61·4	—	817·4	—	167	178·7	—	28·7	—	—	—
1802	713·9	—	67·4	—	645·8	—	263	152·9	—	26·6	—	—	—
1803	862·9	—	81·5	—	894·7	—	297	208·4	—	29·9	—	—	—
1804	814·1	—	68·7	—	935·3	—	294	183·9	—	32·1	—	—	—
1805	864·2	—	97·1	—	967·1	—	264	187·4	—	31·1	—	—	—
1806	953·0	—	84·9	—	919·9	—	166	198·2	—	32·7	—	—	—
1807	850·7	—	83·5	—	853·4	—	267	194·5	—	33·3	—	—	—
1808	861·9	—	89·5	—	898·4	—	86	203·0	—	35·3	—	—	—
1809	794·6	—	91·9	—	901·3	—	156	152·8	—	33·3	—	—	—
1810	891·2	—	69·3	—	927·0	—	277	167·7	—	31·7	—	—	—
1811	969·4	—	86·3	24·7	940·3	—	320	187·7	—	34·0	—	—	—
1812	955·9	—	91·9	27·2	946·1	—	235	162·5	—	29·0	—	—	—
1813	927·6	—	68·8	27·8	961·6	—	—	156·1	—	28·4	—	—	—
1814	773·4	—	60·2	21·4	866·0	—	172	152·8	—	29·6	—	—	—
1815	795·6	—	59·6	20·5	837·3	—	311	171·8	—	28·8	—	—	—
1816	714·8	—	55·5	17·0	747·1	—	229	181·0	—	28·6	—	250·4 (*b*)	8·6 (*b*)
1817	714·3	—	73·3	20·1	742·3	—	240	169·9	—	25·6	—	606·7	15·7
1818	832·6	975·2	84·0	29·0	815·5	900·4	378	200·1	231·0	21·9	25·6	907·8	20·9
1819	1092·1	1127·2	84·0	34·7	977·1	986·8	415	270·2	255·9	29·6	27·7	1082·1	21·7
1820	997·0	963·1	70·3	31·5	894·0	835·0	341	172·3	139·0	25·8	25·7	1052·7	13·1
1821	978·6	913·3	76·9	32·2	829·3	737·0	392	142·2	140·5	26·6	25·2	1043·6	18·6
1822	993·0	1035·9	83·8	37·5	739·5	747·0	451	157·7	164·0	25·7	26·1	1330·3	20·0
1823	1137·4	1265·0	87·2	41·3	762·8	817·5	512	182·0	202·9	24·8	27·1	1515·8	19·1

1824	1311·9	1493·4	104·5	48·2	840·1	884·4	582	253·4	302·0	26·7	27·2	1596·9	20·2
1825	1826·6	1991·2	118·2	54·0	955·4	980·6	709	366·0	424·3	31·5	37·1	2319·2	20·3
1826	974·1 (*b*)	1380·9	98·4	49·1	577·8 (*b*)	998·6	556	205·2 (*b*)	306·8	20·8 (*b*)	38·0	1248·7	18·9
1827	—	1123·6	99·7	40·7	—	918·2	467	—	203·3	—	30·2	840·2	11·1
1828	—	1103·5	90·6	36·8	—	798·5	470	—	246·9	—	31·0	788·8	8·7
1829	—	1134·7	97·1	36·7	—	775·6	493	—	251·5	—	29·5	788·8	11·5
1830	—	1112·7	84·2	—	—	704·4	457	—	214·4	—	27·2	667·0	8·1
1831	—	1153·0	83·5	—	—	697·7	512	—	275·9	—	28·8	570·9	8·4
1832	—	998·2	90·3	—	—	766·0	494	—	263·4	—	34·7	398·0	7·5
1833	—	1035·8	110·6	—	—	—	467	—	244·7	—	—	464·2	—
1834	—	1179·8	113·2	—	—	—	489	—	273·9	—	—	538·8	—
1835	—	1379·9	115·9	—	—	—	627	—	305·7	—	—	607·1	—
1836	—	1640·3	117·0	—	—	—	623	—	342·1	—	—	683·9	—
1837	—	1511·2	102·0	—	—	—	580	—	330·1	—	—	714·8	—
1838	—	1454·4	116·0	—	—	—	647	—	274·1	—	—	696·6	—
1839	—	1611·0	118·5	—	—	—	623	—	422·7	—	—	819·8	—
1840	—	1725·6	119·2	—	—	—	692	—	478·2	—	—	880·0	—
1841	—	1463·3	104·3	—	—	—	654	—	394·6	—	—	851·8	—
1842	—	1303·8	98·8	—	—	—	—	—	319·4	—	—	867·7	—
1843	—	1184·4	112·0	—	—	—	—	—	255·3	—	—	652·7	—
1844	—	1457·8	116·5	—	—	—	—	—	371·3	—	—	848·0	—
1845	—	1878·0	—	—	—	—	—	—	573·2	—	—	1029·3	—
1846	—	2102·4	—	—	—	—	—	—	626·9	—	—	1109·0	—
1847	—	2259·9	—	—	—	—	—	—	661·0	—	—	1148·3	—
1848	—	1495·8	—	—	—	—	—	—	348·0	—	—	638·2	—
1849	—	1503·9	—	—	—	—	—	—	411·9	—	—	856·4	—

(*a*) Figures for 1785 relate to year from 1 September 1784 to 5 July 1785.

(*b*) Half-year.

(1) *Number of bricks charged with excise duty in Great Britain, 1785–1826.* Years ending 5 July. Source: *Excise Revenue Accounts*, MSS. in Customs House, London, and Register House, Edinburgh.

(2) *As col. 1 but covering the period 1818–49 and relating to calendar years* (or rather, years ending 5 January).

(3) *Quantities of Crown and German Sheet Glass retained for home consumption in Great Britain, 1789–1844.* Source: G. R. Porter, *Progress of the Nation* (1847 ed.), p. 257.

(4) *Customs duty collected on sea-borne shipments of slate in Great Britain, 1811–29.* Calendar years (or rather, years to 5 January). The duty on slates was reduced from £35. 4*s*. (per cent *ad val.*) to £26. 8*s*. in 1814. The basis of assessment to duty was changed in 1823 and 1827. Source: *Parl. Papers*, 1830–1 (354), x, 445.

(5) *Number of tiles charged to excise duty in Great Britain, 1785–1826.* Years ending 5 July. Source: *Excise Revenue Accounts*, Customs House, London and Register House, Edinburgh.

(6) *As col. 5 but covering the period 1818–32 and relating to calendar years* (or rather, years to 5 January). Source: As for col. 5 and (for the years 1818–25) *Parl. Papers*, 1830 (194), XXV (63).

(7) *Quantity of fir timber imported into Great Britain, 1788–1841.* Source: A. D. Gayer, W. W. Rostow and A. J. Schwartz, *The Growth and Fluctuation of the British Economy, 1790–1850* (1950).

(8) *Number of bricks charged with excise duty in Scotland, 1785–1826.* Years ending 5 July. Source: *Excise Revenue Accounts*, Register House, Edinburgh.

(9) *As col. 8 but covering the period 1818–49 and relating to calendar years* (or rather, years to 5 January). Source: For the years 1818–26, from *Parl. Papers*, 1830 (194), XXV (63); for 1827–31 from *Excise Revenue Accounts*, Register House, Edinburgh; thereafter from the various Parliamentary Returns relating to bricks quoted by Shannon (*loc. cit*) and Porter's *Tables*.

(10) *Number of tiles charged with excise duty in Scotland, 1785–1826.* Years ending 5 July. Source: *Excise Revenue Accounts* in Register House, Edinburgh.

(11) *As col. 10 but covering the period 1818–32 and relating to calendar years* (or rather years to 5 January). Source: As for col. 10 and (for the years 1818–25) *Parl. Papers*, 1830 (194), XXV (63).

(12) *Number of bricks charged with excise duty in London, 1816–49.* Source: For the calendar years 1817–40 from the *Excise Revenue Accounts*, Customs House, London; for 1841–9 estimates on the basis of the annual amounts of excise duty paid on bricks in the London area. (Returns of duties paid on bricks, as cited by Shannon, *loc. cit.*)

(13) *Number of pan or ridge tiles charged to excise duty in London, 1817–32.* The figures relate to calendar years. Source: *Excise Revenue Accounts*, Customs House, London.

STATISTICAL SAMPLING: AN ADAPTATION TO ITALIAN ECONOMIC DEVELOPMENT

By LLOYD SAVILLE

I

USE of sampling techniques may improve our perspective of historical change. Generalizations concerning the past are sometimes founded, at one extreme, on a series of inclusive totals, or at the other, on a number of isolated segments. In one, depth is lost and in the other, bias may be introduced. The thesis of this paper is that, in a country such as Italy, reliance on national averages of population, income, and living standards conceals the true range of conditions making up the average. And dependence on developments such as those in Rome, Milan, and Naples for internal details presents only a single, non-representative aspect of a many-sided economy. It is suggested instead that our knowledge of the whole may be expanded by a prudent study of a few carefully chosen components. In this fashion overall averages may be given form and bias may be reduced. In short, the technique provides an orderly method for meeting the requirement of our science that we generalize from data representing the complete economic organism.

A sampling technique of this sort is especially productive in the case of Italy. As the last of the major nations to achieve national unity she possesses in well-preserved monuments evidence of the varied internal and external forces that have constituted her national character. Statistical inference may even reveal contrapuntal rather than parallel fluctuations of time series in which opposing internal movements have failed to disturb summary values. Thus, her historical and current economic problems may be understood more fully and her probable future developments may be predicted more precisely from a sample of the internal structure of Italian time series than would be possible from reliance on the study of total values alone.

Selection of criteria and location of implementing information are preliminary steps in developing a sample. Ideally perhaps, specifications might be tailored to fit the exact requirements of each new problem. Practically, however, this may be neither feasible nor altogether advisable since the number of possible samples is curtailed first, by the size of the universe and second, by the scarcity of time series available for drawing the sample. In economic history the universe from which a sample may be selected is restricted not only by the paucity of political units in a region or a nation, but also by the frequent need of dividing this small number into several stratified groups for selective sampling. Choice of representative units implies the existence of appropriate factual information about each unit of the universe. Since only a limited number of reliable time series possess sufficient generality and antiquity to serve as implementing criteria, selection is narrowed even further.

Preserving the same sample from study to study offers certain advantages. Not the least of these is the economy of using the same fact more than once in varying contexts. Also, each bit of additional information gained about the sample contributes to the development of a fully rounded picture of this representative situation. For these reasons the sample developed in the body of this paper is thought to be an appropriate illustration of the use of this technique, and, more practically, one of the very limited number of actual samples serviceable in the investigation of Italian economic history.

II

For a study in depth in Italy a sample of provinces is an obvious choice. Current usage divides the country into four sections, nineteen regions, ninety-one provinces, and 7,871 communities.[1] At one extreme the sections and regions are too large and inclusive, while at the other the communities are too subordinate and diverse to serve adequately the purpose of general economic analysis. Provinces alone are both numerous enough to offer ample choice and inclusive enough to provide a workable cross-section of statistical information.

Preliminary attention is demanded by the strong sectional character of the nation. Long domination by such foreign forces as Austria, France, and Spain, and the temporal control by the Church have left diverse customs of economic thought and practice in the areas controlled by these powers. Likewise, the very presence of islands, especially Sardinia, large and remote from the mainland, presents not only a barrier to the national unification of diverse regional peculiarities, but also great variability in the statistical measures describing the country as a whole. Because of these influences, the economic *mores* of Italy today reflect, both positively and negatively, complex groups of human and natural elements, and create a sectionalism requiring a more detailed differentiation than the four legally constituted sections of Italy.

Fundamental geographic and historical facts demarcate six relatively homogeneous areas. The northern region may be subdivided into North-west and North-east, the Central section into Tuscany and East Central, and the South and Insular areas regrouped to form (1) South plus Sicily, and (2) Sardinia. Although the number of sections is only increased by two, the resulting division has at once sufficient historical validity and social cohesiveness to be used as a basis for sampling.

Variations in social characteristics distinguish these divisions of Italy. Although pertinent statistical evidence is of varied date and accuracy, it is possible to derive some numerical measures of sectional differences corroborating the facts of political history. 1871, the first full year of Italy's complete unification, is an appropriate starting point, i.e., the moment when all of the complex regional forces were brought together in one nation but before the powers of national unity could begin to adapt local idiosyncrasies into a uniform national pattern.

From section to section great differences were evident in cardinal economic facts. Even the few statistical series available for all sections of the country show the scope of this regionalism. Except on the island of Sardinia population density was high and relatively uniform (Table 1). Community size, a crude standard of market scope, varied widely from the large areas encompassed in Tuscany to the small ones in the North-west and North-east. Educational attainment, as indicated by reading ability, and political preference, as displayed by the franchised 2 per cent of the population assess, respectively, a crucial utilization of economic gains and a measurable response to environmental conditions. In both, north-south cleavages were apparent. By these broad measures each of the six geographic sections exhibited a dissimilar economic heritage.

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[1] A. Bruno, *Nuovo dizionario dei comuni e frazioni di comune* (Rome, 1954), p. 271; or for this egneral organization see tables in almost any of the publications of the Central Statistical Institute which follow the classification prescribed by the *Constitution*, approved 22 December 1947.

(1) *North-west*—Early statistical compilations distinguish as *Piemontese*[1] the whole area now comprising the regions of Piedmont, Valley of Aosta, and Liguria. A continuation of this older classification is logical. The proximity of the French, the unity of the Kingdom of Sardinia, the long and effective opposition to the Austrians, and the dominance of the great Cavour distinguish it from Lombardy and the other north-eastern states. By the statistical measures shown in Table 1 the North-west is unique. In 1871 a substantially larger proportion of the adult population of this section affirmatively answered the question, 'Can you Read?', than they did in any other region. In comparison with the North-east, population was slightly less dense and communities were even smaller in area; the smallest in Italy and only about one-fifth as large on the average as those in Tuscany.

Table 1.* *Certain social characteristics of sections of Italy at selected times shortly after national unification*

Characteristic, Unit, Year	North-west	North-east	Tuscany	East Central	South plus Sicily	Sardinia	Italy
Density of population, average number of persons per square mile, 1871	280	315	231	191	221	68	234
Size of community, average area in square miles, 1871	7	8	33	19	20	26	14
Reading ability, percentage of persons aged 20 and over able to read, 1871	53	41	34	26	17	14	31
Political preference, percentage of vote for Right party, 1874	70	70	77	69	28	53	54
	Each Section as a percentage of average for Italy						
Density of population	120	135	99	82	94	29	100
Size of community	50	57	236	136	143	186	100
Reading ability	171	132	110	84	55	45	100
Political preference	130	130	143	128	52	98	100

* Computed from data presented in Table 4, figures adjusted to maintain tabular consistency.

(2) *North-east*—Since the Lombardy-Venetia area was subjected to a persistent and thorough-going occupation, and the border provinces to the north and east have only recently been annexed, this whole region shares a common background of Austrian influence. The situation is not as clear in the area now making up the province of Emilia-Romagna, for the Romagna region was long a part of the Papal States (1278–9 to 1860). To avoid the almost impossible bookkeeping problem of dividing the statistics of a single compartment between two areas, this refinement has been disregarded and the whole of Emilia-Romagna has been combined with the other provinces of the North-east to form one section. Shortly after the *Risorgimento* the North-east was distinguished by the

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[1] For example: Ministro delle Finanze, *Relazione delle amministrazioni finanziarie* (Rome, 1874), p. 134.

highest density of population in Italy and shared with the North-west small community size, a high literacy rate, and a preference for the political *Right*.

(3) *Tuscany*—Customarily classified as part of central Italy, this region warrants separate treatment. It was not a portion of the Papal States as were the other central provinces, nor was it actively occupied by Austria as were the provinces in the North-east. Rather it was a separate entity for more than 300 years, suffering Austrian princelings on the throne and paying tax tributes to Vienna. Although in density of population and ability to read Tuscans were very close to the average for Italians as a whole, in community size and a very strong preference for the Right they displayed clear individuality. In their linguistic tradition, captured by Dante and made the standard of modern Italian, they also exhibited strong sectional identity.

(4) *East Central*—For 600 years the Papal States comprised the general areas of the modern provinces of Umbria, Marche, and Lazio. With the exception of Romagna, already noted, the small state of San Marino and some minor boundary adjustments, this central region possesses the most unambiguous political background of all Italy. A low density of population for mainland Italy, less than average education, large communities, and a preference for the Right characterize this section. Moreover, an exhaustive supervision of local affairs by the Papacy through organizations such as the Buon Governo[1] gave a definite character and administrative unity to this section.

(5) *South plus Sicily*—Although the geographical boundaries of southern Italy are distinct, her political antecedents are involved. The lasting influence of 300 years of Spanish domination was sharply modified, first, by a modernizing half-century of French rule, and secondly, after the restoration of Spanish power, by the conservative treaties and armed assistance of Austria. Such common influences as the long domination by Spain, political reformation by France, geographic proximity of the two areas, and inclusion in the Kingdom of the Two Sicilies make the Island of Sicily a component of a workably consistent southern Italy. In 1871 this region was distinguished by a low standard of reading ability and an apparent aversion to the Right. Probably, however, the political preference shown in Table I reflects more a dislike of the party in power than a preference for the Left, for six years later they also returned a sizeable dissent, this time against the Left—the party then in office. In each case the opposition was engendered among the franchised upper one-fiftieth of the population.[2]

(6) *Sardinia*—Spanish and Austrian occupation, and later incorporation with Piedmont in the Kingdom of Sardinia (1720) distinguishes this island from Sicily. Also, the distance from the mainland and lack of communication with other than central Italy gives it an independent character among the sections of the country. Sardinia shows its uniqueness by each of the statistical measures, but most especially by a density of population that was less than a third as great as the mainland average and an educational system that produced one reader among seven adults.

By combining diversified areas, the usual division of Italy into North, Central, South, and Insular tends to obscure essential differences. The political preference of Sardinia for the Right and the lower literacy of its people are obliterated by the larger population of Sicily when Sicily and Sardinia are combined in an Insular region. Likewise, special features of literacy, population density, and community size are only a few of the salient variations lost to sight in the East Central section when it is averaged with dissimilar Tuscany to produce the conventional Central Italy.[1] There is danger, of course, in carrying a subdivision of this sort too far, for it is always possible to find intriguing differences demanding still further subdivision. The six units suggested here are marginally justified, however, for although they increase the number of sections by two, this increased cost in time is compensated for by a greater return in the form of a more logical and historically valid division of the country for social study.

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[1] The State Archives in Rome is in the course of publishing in three instalments a much needed catalogue of the records of this administration by Dr Elio Lodolini.

[2] Istituto Centrale di Statistico e Ministero per la Costituente, *Compendio delle statistiche elettorali italiane dal 1848 al 1934* (Rome, 1947), II, 120–1; and Istituto Centrale di Statistica, *Annuario statistica italiano, 1953* (Rome, 1953), p. 420.

III

Stratified sampling was used in selecting the provinces. Because of the small number involved and the possibility of simplifying the analysis by choosing similar provinces, a random sample was not employed. Instead a kind of *ceteris paribus* technique was utilized in which similar provinces were chosen from each of the six regions of Italy. Important variables, topography and population density, were held roughly constant from province to province in order to facilitate observation of differences in economic institutions. Provinces containing large administrative centres were avoided so as to minimize the special problems associated with large regional capitals. Again attention was given to the historical development of areas to insure that the tradition of the selected province was typical of the region as a whole. Applying these criteria, for which reliable statistics are available, to the ninety-one provinces not only avoided using scarce economic time series more productively employed in subsequent studies, but also yielded six provinces broadly similar in appearance and generally representative of the sections from which they were chosen.

Since it was clearly expedient to discard the patently redundant provinces before expending time on them to establish a precise preferential ranking, the steps taken in drawing the sample are arranged in order of convenience rather than of importance. The data and discussion in the first six steps are limited to

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[1] Values computed from the same sources and corresponding to those shown in Table 1 for the normal division of Italy into North, Central, South, and Insular are as follows:

Characteristic, Unit, Year	North	Central	South	Insular	Italy
Density of population, average number of persons per square mile, 1871	303	208	218	156	234
Size of community, average area in square miles, 1871	8	23	18	28	14
Reading ability, percentage of persons aged 20 and over able to read, 1871	45	30	17	15	31
Political preference, percentage of vote for Right party, 1874	70	74	33	23	54
		Each Section as a percentage of average for Italy			
Density of population	129	89	93	67	100
Size of community	57	164	129	200	100
Reading ability	145	97	55	48	100
Political preference	130	137	61	43	100

Italy less Sardinia; basic differences in provisional organization, population density, and range of selection justify a treatment of this island separate from the more homogeneous mainland Italy and Sicily.

(1) *Special home rule*—Local government privileges are enjoyed by the peripheral regions of Italy, Valley of Aosta, Trentino-Alto Adige, Friuli-Venetia Julia, Sicily, and Sardinia. Autonomy was granted these areas because they have come under Italian control recently, or otherwise possess political and social characteristics differing from surrounding sections. Accordingly the Valley of Aosta and the thirteen provinces in mainland Italy and Sicily were discarded, for they could not be employed as typical examples of larger regions not possessing this degree of independence.[1]

(2) *Administrative centre*—Chief towns of regions and the capitals of earlier royal administrations were avoided. Urbanization creates special problems and solutions atypical of the country as a whole, and proximity to higher authority tends to influence local administrations. Thus, the people of Naples were accorded tax privileges at the expense of the rural subjects of Charles III.[2] The avoidance of major cities is especially pertinent in Italy where much of the literature and statistics is concerned with urban centres unrepresentative of the country as a whole. Consequently fifteen additional provinces were eliminated because they contained centres of administrative importance.[3]

(3) *New Provinces*—To measure historical changes obviously requires political units of some antiquity, for this reason recently created provinces were avoided. In consideration of this, sixteen provinces not in existence at the census of 1871 were discarded.[4]

(4) *Population density*—High density of population characterized most parts ot Italy except Sardinia. On the mainland in 1871 the density was 249 persons for each square mile, ranging rather narrowly from a high of 280 persons in the North-east to a low of 191 in the East Central section. Consistent with the goal of maintaining a relatively uniform density of population among the sample provinces, twenty-nine mainland provinces with densities deviating from the average of mainland Italy and Sicily by more than 15 per cent were discarded.[5]

(5) *Topography*—Except for the area along the Po, a rugged, mixed terrain influences the economy of most parts of the country. The Alps, Apennines, and their foothills extend over such a wide area that communications, soil cultivation, irrigation, and other topographical problems associated with mountains

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[1] Provinces excluded were Trento, Gorizia, Udine, Bolzano, Agrigento, Caltanissetta, Catania, Enna, Messina, Palermo, Ragusa, Syracuse, and Trapani.

[2] *The Cambridge Modern History*, ed. A. W. Ward, G. W. Prothero, and S. Leathes (Cambridge, 1902–11), IV, 598–9.

[3] Turin, Milan, Venice, Genoa, Bologna, Florence, Perugia, Ancona, Rome, Aquila, Naples, Bari, and Potenza; and both Catanzaro and Reggio Calabria because the administrative offices in the Calabria region are divided between these two centres.

[4] Ministero di Agricoltura, Industria e Commercio, Ufficio Centrale di Statistica, *Popolazione presente ed assente per comuni centri e frazioni di comune*, Censimento 31 dicembre 1871 (Rome, 1874), I, Parte seconda, 303–5. The rejected provinces are: Asti, Vercelli, Varese, Imperia, La Spezia, Savona, Pistoia, Terni, Frosinone, Latina, Rieti, Viterbo, Pescara, Brindisi, Trento, and Matera.

[5] These provinces and their population densities in persons per square mile are: Alessandria (350), Bergamo (339), Como (456), Cremona (477), Mantua (300), Pavia (347), Sondrio (88), Belluno (137), Padua (482), Rovigo (308), Treviso (376), Verona (347), Vicenza (357), Forli (326), Ravenna (298), Arezzo (184), Grosseto (62), Leghorn (943), Lucca (487), Siena (140), Pesaro and Urbino (186), Campobasso (205), Chieti (308), Teramo (192), Benevento (337), Caserta (303), Foggia (109), Lecce (150), and Cosenza (155); densities of population computed from Ministero dell'Interno, Direzione Generale di Statistica, *Annuario statistico italiano, 1878* (Rome, 1878), Parte prima, pp. 30–1.

and hills are important in each one of the nineteen administrative regions. On the other hand, problems connected with plains are much less serious in most areas and totally lacking in many sections especially in Central Italy. After comparing the proportions of mountains, hills, and plains in the remaining provinces with the proportions in the sections they were to represent (Table 2),

Table 2. *Proportionate topography of certain provinces, sections, and Italy, 1953**

Area	Mountains (%)	Hills (%)	Plains (%)	Total (%)
ITALY (less Sardinia)	41	37	22	100
North-west	55	26	19	100
Cuneo	50	30	20	100
Novara	68	13	19	100
North-east	43	16	41	100
Brescia	53	20	27	100
Ferrara†	0	0	100	100
Modena†	44	9	47	100
Parma	52	24	24	100
Piacenza	36	37	27	100
Reggio Emilia	38	18	44	100
Tuscany	31	59	10	100
Massa-Carrara†	100	0	0	100
Pisa	0	77	23	100
East Central	42	51	7	100
Ascoli Piceno	43	57	0	100
Macerata†	63	37	0	100
South plus Sicily	35	51	14	100
Avellino	61	39	0	100
Salerno	58	15	27	100

* Computed from *Annuario statistico italiano* (1953), pp. 5–6; 30 June 1953 data used because earlier statistics contained only a simple dichotomy, mountains and plains (*Annuario Statistico Italiano* (1878), Parte Prima, pp. ii–v), instead of the trichotomy available more recently.

† Provinces eliminated because of nontypical topography.

five additional provinces were discarded.[1] In some regions the choice was limited by the number surviving earlier exclusions, as a result less typical provinces were held in some areas than were discarded in others. This was of minor importance, however, for it was possible to maintain a workable level of topographical consistency from section to section among those remaining.

(6) *Historical background*—No further screening was necessary where only single provinces within an area survived the first five tests. In the North-west and the North-east, however, where more than one province still remained, and exact sectional boundaries are fluid, final selection was based on the capacity of each province to represent the economic tradition of the region. Between Cuneo and Novara the choice was clearly Cuneo. For Novara was not only under the domination and protection of Milan during her early development but also was actively occupied by Austria after the Peace of Utrecht, and so came under influences foreign to the rest of the North-west. Among Brescia, Parma, Piacenza, and Reggio Emilia, the first is definitely to be selected; the last four provinces, although under Austrian domination for a long period, were subject

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[1] Ferrara, Modena, Massa-Carrara, Macerata, and Avellino.

to a degree of control more comparable with Tuscany's than the active occupation experienced by Brescia and the whole of Lombardy.

(7) *Sardinia*—Because this island is so different from mainland Italy and Sicily, the selection of a representative province requires the breaking of almost all of the criteria used in choosing the other sample provinces. Special home rule laws apply in Sardinia, hence any province will possess this political idiosyncrasy. From the point of view of the entire sample, the inclusion of one section administered in this fashion has the merit at least of increasing the comprehensiveness of the whole. Of the three provinces now on Sardinia, one is new, Nuovo, and must be discarded on the practical ground of possessing too brief a history. Another's topography is confined exclusively to hills, Sassari, and is, therefore, not typical of the mixed terrain of the Island. The third province, Cagliari, although an administrative centre, is the most useable in other ways; it not only has a great antiquity but also a configuration and population density reasonably close to the average for all of Sardinia.[1]

Thus the final sample comprises: *North-west*—Cuneo, *North-east*—Brescia, *Tuscany*—Pisa, *East Central*—Ascoli Piceno, *South plus Sicily*—Salerno, and *Sardinia*—Cagliari. With the exception of Cagliari each of them was generally similar in population density and land topography to Italy as a whole in 1871. At the same time each province was firmly entrenched in the economic heritage of its region. And none of them was subject to the special problems or traditions of urban centres. In short, at the time of unification while possessing backgrounds common to the larger sections, these provinces were roughly equal in the cardinal features of the Italian environment.

IV

Comparing economic change is a useful device for testing the utility of a sample. Six statistical measures derived from meticulous official reports provide authentic material for this purpose. From them it is possible to extract some measure of the way sectional forces established in the past have matured.

(1) Alterations in population density are of paramount importance in shaping the national economy and each of its parts. (2) Increases in the number of readers in the adult population, and (3) extensions in the road system are a pair of rough indicators of accomplishments of public expenditures in areas of primary consequence, education and public works. (4) Preference for political parties of the Right, Centre, or Left gives measurable indication of the voter's reactions to his environment. (5) Dependence of workers on agriculture for employment and (6) taxable income from land, buildings, and personal property reflect the shifting focus of industrial activity and general economic change.

Sectional variations in economic activity since unification should be illuminated by this sample. Over the past eighty years the major regions of Italy

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[1] Density and terrain figures are as follows:

Area	Population density* (pers./mi.^{2})	Proportion of land in†		
		Mountains	Hills	Plains
Sardinia	68	15	67	18
Cagliari	75	17	41	42

* *Annuario statistico italiano* (1878), Parte prima, p. 31.

† *Annuario statistico italiano* (1953), p. 6.

have responded in different ways to economic change. If this sample is usable, these regional alterations should be reflected in comparable shifts in the sample provinces. Possibly also, the other movements discernible only at this level may add refinements to the economic profile of the section and the nation.

In the subsequent discussion no special adjustments have been thought necessary for changes in the size of administrative areas. Only small modifications in territory occurred as boundaries were refined and new provinces created. Apart from some trivial bias introduced by concentration on the older, more fully established, provinces the problem of changes in territory is easily overcome. Since the provinces themselves are samples of larger sections, variations in area are essentially unimportant fluctuations in the size of the sample. Thus, interpretation of statistical movements from them requires only an awareness of the magnitude of the change for possible variations in economies of scale and the appropriate statement of the results on a per person or other applicable per unit basis.

(1) *Change in density of population*—In eighty years the population of the nation increased in a sectional pattern an average of 168 persons per square mile (Table 3).[1] Large increases in the East Central, South plus Sicily, and Sardinia sections contrast with the relatively smaller ones in the North-west, North-east, and Tuscany, as areas with lower initial populations registered large percentage gains. The divergent population developments among the sample provinces reflect a general tendency toward urbanization. In the North-west the rapid enlargement of the industrial centre at Turin and in the East Central section the creation of the national capital tended to inflate average growths in these areas beyond those of more rural sample provinces. Cuneo and Cagliari show extremes of density change as rural areas of the North-west lost population and the urban centre of Sardinia gained in a general movement from villages to the greater economic opportunities of city life.

(2) *Change in the public sphere*—Government activity produced substantial gains. Measured by the tangible evidence of the number of adults who could read and the extensiveness of the road system, advances were recorded in every region. Viewed on an actual basis, the 1871 sectional pattern of higher literacy in the North than in the South persisted and was even being augmented in some sections at least as late as 1931, the last year information was published in this detail. In percentage terms the low initial levels in the South and Sardinia produced gains of great magnitude. On either a numerical or percentage basis changes among the sample provinces were broadly similar to those occurring in their respective regions.

Modern requirements that roads bear motor traffic make precise historical comparisons unreliable. It is true that ancient Roman roads, with a light surfacing of asphalt, still carry heavy vehicle traffic, but these are the exception. It is possible to say only that the length of roads has doubled in eighty years. The national survey figures used in Table 3, however, imply an intensified pattern of improvement in which the more extensive road systems in northern and central sections were expanded more fully than the more primitive systems of the South and Sardinia. Again, lower starting figures in the southern areas produced greater percentage gains.

Provincial figures behave somewhat differently from sectional ones. Construction and maintenance of streets and highways is one of the largest civic

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[1] Details concerning these data and statistics referred to subsequently are shown in Table 4.

Table 3.* *Increases in certain measures of social change occurring in the sections of Italy and in the sample provinces since unification*

	Sections of Italy						
	North-west	North-east	Tuscany	East Central	South plus Sicily	Sardinia	
	Sample provinces						
Characteristic, Unit, Period	Cuneo	Brescia	Pisa	Ascoli Piceno	Salerno	Cagliari	Italy
Density of population, change in average number of persons per square mile, 1871 to 1951							
Sections	115	154	125	213	201	68	168
Provinces	−6	183	147	150	179	110	
Reading ability, change in average number of readers per 100 persons aged 20 and over, 1871 to 1931							
Sections	42	47	44	46	36	42	44
Provinces	45	37	44	39	38	40	
Road milage, change in average number of feet of roads per square mile of territory 1876 to 1951							
Sections	3420	2710	2520	2680	2120	880	2600
Provinces	2840	1250	2470	4410	2300	990	
Dependency on agriculture, change in average number of men in every 100 engaged in agriculture, 1871 to 1936							
Sections	−24	−18	−13	−15	−8	−13	−14
Provinces	−7	−19	−8	−9	−12	−17	
Taxable income, change in taxable income per person from land, buildings, and personal property, 1890 to 1951							
Sections	52	34	14	26	2	1	22
Provinces	14	9	11	3	0	3	
	Percent of earlier year						
Density of population							
Sections	41	49	54	112	91	100	72
Provinces	−3	66	66	60	70	147	
Reading ability							
Sections	79	114	130	172	218	292	139
Provinces	91	65	133	221	246	300	
Road milage							
Sections	121	65	93	140	183	113	117
Provinces	101	25	69	180	139	132	
Dependency on agriculture							
Sections	−43	−32	−24	−26	−14	−21	−27
Provinces	−11	−32	−15	−14	−20	−27	
Taxable income							
Sections	427	285	104	149	22	9	193
Provinces	132	73	112	40	1	31	

* Computed from data and sources given in Table 4.

Table 4. *Certain basic data concerning changes in sections and sample provinces of Italy since unification*

(*a*) Characteristic, Unit, Period	(*b*) NORTH (*c*)+(*e*)	(*c*) North-west	(*d*) *Cuneo*	(*e*) North-east	(*f*) *Brescia*	(*g*) CENTRAL (*h*)+(*j*)	(*h*) Tuscany	(*i*) *Pisa*	(*j*) East Central	(*k*) *Ascoli Piceno*	(*l*) SOUTH	(*m*) South plus Sicily	(*n*) *Salerno*	(*o*) *Sardinia*	(*p*) *Cagliari*	(*q*) Insular (*m*)+(*o*)−(*l*)	(*r*) ITALY (*b*)+(*g*)+(*l*)+(*q*), *or* (*c*)+(*e*)+(*h*)+(*j*)+(*m*)+(*o*)
Density of population, average number of persons per square mile*																	
On 31 Dec. 1871	303	280	224	315	277	208	231	225	191	251	218	221	255	68	75	156	234
On 4 Nov. 1951	448	395	218	469	460	385	356	373	404	401	413	422	434	136	185	296	402
Change, 1871 to 1951	+145	+115	−6	+154	+183	+177	+125	+148	+213	+150	+195	+201	+179	+68	+110	+140	+168
Size of community: Average area in square miles†																	
On 31 Dec. 1871	8·1	7·4	10·5	8·5	5·8	23·0	33·4	29·5	18·6	11·4	17·9	20·1	13·4	25·5	20·4	28·4	13·7
On 30 June 1951	10·6	8·9	10·7	11·5	9·4	22·9	31·7	24·9	19·4	11·2	16·2	18·0	12·1	27·8	22·4	27·3	14·9
Change, 1871 to 1951	+2·5	+1·5	+0·2	+3·0	+3·6	−0·1	−1·7	−4·6	+0·8	−0·2	−1·7	−2·1	−1·3	+2·3	+2·0	−1·1	+1·2
Average number of persons‡																	
On 31 Dec. 1871	2,450	2,070	2,350	2,660	1,600	4,790	7,710	6,650	3,550	2,860	3,900	4,440	3,410	1,730	1,520	4,420	3,200
On 4 Nov. 1951	4,740	3,500	2,330	5,370	4,300	8,840	11,280	9,270	7,860	4,490	6,680	7,590	5,250	3,780	4,150	8,070	5,990
Change, 1871 to 1951	+2,290	+1,430	−20	+2,710	+2,700	+4,040	+3,570	+2,620	+4,310	+1,630	+2,780	+3,150	+1,840	+2,050	+2,630	+3,650	+2,790
Reading ability, average number of readers per 100 persons aged 20 and over§																	
On 31 Dec. 1871	44·9	52·7	49·0	41·4	57·1	29·9	33·7	32·8	26·4	17·5	17·1	16·6	15·5	14·5	13·2	14·9	31·4
On 21 April 1931	90·2	94·2	93·8	88·6	94·2	74·3	77·6	76·3	71·9	56·2	53·1	52·8	53·7	56·9	52·8	53·1	75·1
Change, 1871 to 1931	+45·3	+41·5	+44·8	+47·2	+37·1	+44·4	+43·9	+43·5	+45·5	+38·7	+36·0	+36·2	+38·2	+42·4	+39·6	+38·2	+43·7
Stature, average height in inches of men aged 20‖																	
Born in 1854	64·4	64·0	n.a.¶	64·6	n.a.	64·2	64·9	n.a.	64·0	n.a.	63·1	63·3	n.a.	62·4	n.a.	62·8	63·9
Born in 1929	66·7	66·8	n.a.	66·7	n.a.	66·5	66·9	n.a.	66·3	n.a.	64·8	64·8	n.a.	64·2	n.a.	64·7	65·9
Change, 1854 to 1929	+2·3	+2·8	n.a.	+2·1	n.a.	+2·3	+2·0	n.a.	+2·3	n.a.	+1·7	+1·5	n.a.	+1·8	n.a.	+1·9	+2·0
*Road Mileage:*** Average number of feet of roads per square mile of territory																	
On 31 Dec. 1876	3,720	2,830	2,810	4,180	4,930	2,270	2,720	3,590	1,920	2,450	1,160	1,160	1,660	780	750	970	2,200
In 1951	6,710	6,250	5,650	6,890	6,180	4,850	5,240	6,060	4,600	6,860	3,430	3,280	3,960	1,660	1,740	2,270	4,820
Change, 1876 to 1951	+2,990	+3,420	+2,840	+2,710	+1,250	+2,580	+2,520	+2,470	+2,680	+4,410	+2,270	+2,120	+2,300	+880	+990	+1,300	+2,600
Average number of feet of roads per person																	
On 31 Dec. 1876	12·3	10·1	12·7	13·2	17·8	10·9	11·8	15·9	10·1	9·8	5·3	5·2	6·5	11·5	10·0	6·3	9·5
In 1951	15·0	15·9	26·0	14·7	13·4	12·6	14·7	16·3	11·4	17·1	8·0	7·8	9·1	12·2	9·4	7·7	12·0
Change, 1876 to 1951	+2·7	+5·8	+13·3	+1·5	−4·4	+1·7	+2·9	+0·4	+1·3	+7·3	+2·7	+2·6	+2·6	+0·7	−0·6	+1·4	+2·5
Dependency on agriculture, average number of men in every 100 engaged in agriculture††																	
On 31 Dec. 1871	55·3	56·3	65·8	54·9	58·2	54·2	51·7	49·3	56·5	65·5	53·7	51·8	56·8	64·0	63·6	50·2	54·1
On 21 April 1936	35·8	32·0	58·6	37·1	39·4	40·6	39·1	41·7	41·6	56·4	44·7	44·3	45·3	50·6	46·4	44·9	39·7
Change, 1871 to 1936	−19·5	−24·3	−7·2	−17·8	−18·8	−13·6	−12·6	−7·6	−14·9	−9·1	−9·0	−7·5	−11·5	−13·4	−17·2	−5·3	−14·4

Taxable income, taxable income per person from land, buildings, and personal property‡‡																	
In 1890	12·0	12·2	10·3	11·9	11·9	15·3	13·1	9·7	17·3	7·0	9·4	8·8	7·9	9·0	9·5	7·7	11·3
In 1951	50·3	64·3	23·9	45·6	20·6	37·1	26·7	20·6	43·0	9·8	10·3	10·7	8·0	9·8	12·4	11·3	33·1
Change, 1890 to 1951	+38·3	+52·1	+13·6	+33·7	+8·7	+21·8	+13·6	+10·9	+25·7	+2·8	+0·9	+1·9	+0·1	+0·8	+2·9	+3·6	+21·8
Political preference:																	
Election of 8 and 15 Nov. 1874, percentage of total vote§§																	
Right Party	70·0	70·1	n.a.	69·8	n.a.	73·2	76·9	n.a.	68·6	n.a.	32·8	28·4	n.a.	53·0	n.a.	23·2	53·6
Left Party	30·0	29·9	n.a.	30·2	n.a.	26·8	23·1	n.a.	31·4	n.a.	67·2	71·6	n.a.	47·0	n.a.	76·8	46·4
Total vote	100·0	100·0	n.a.	100·0	n.a.	100·0	100·0	n.a.	100·0	n.a.	100·0	100·0	n.a.	100·0	n.a.	100·0	100·0
Election for Chamber of Deputies, percentage of total vote‖‖																	
On 18 April 1948																	
Centre parties	61·4	61·0	77·5	61·5	68·1	55·9	48·3	42·8	60·9	67·4	62·5	62·3	61·0	62·7	59·7	62·1	60·7
Left parties	32·9	32·7	11·6	32·9	27·5	37·6	47·0	52·5	31·5	26·6	23·1	22·3	16·0	19·8	23·6	20·2	30·2
Right parties	1·4	1·5	1·2	1·5	1·8	3·4	1·5	1·2	4·6	3·0	10·1	10·6	15·3	4·3	3·7	10·1	4·8
Other	4·3	4·8	9·7	4·1	2·6	3·1	3·2	3·5	3·0	3·0	4·3	4·8	7·7	13·2	13·0	7·6	4·3
Total	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0
On 7 June 1953																	
Centre parties	52·2	50·0	66·2	53·1	58·0	42·9	40·4	37·5	44·6	52·1	43·3	43·2	40·4	45·5	41·9	43·4	47·4
Left parties	35·1	35·5	16·3	34·9	29·9	40·4	48·2	52·0	35·4	32·7	28·0	27·9	24·3	29·2	34·7	28·1	33·8
Right parties	6·4	7·4	7·9	6·0	6·7	10·5	5·6	5·2	13·6	8·0	20·8	21·1	27·6	17·7	16·1	21·1	12·1
Other	6·3	7·1	9·6	6·0	5·4	6·2	5·8	5·3	6·4	7·2	7·9	7·8	7·7	7·6	7·3	7·4	6·7
Total	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0
Change, 1948 to 1953																	
Centre parties	−9·2	−11·0	−11·3	−8·4	−10·1	−13·0	−7·9	−5·3	−16·3	−15·3	−19·2	−19·1	−20·6	−17·2	−17·8	−18·7	−13·3
Left parties	+2·2	+2·8	+4·7	+2·0	+2·4	+2·8	+1·2	−0·5	+3·9	+6·1	+4·9	+5·6	+8·3	+9·4	+11·1	+7·9	+3·6
Right parties	+5·0	+5·9	+6·7	+4·5	+4·9	+7·1	+4·1	+4·0	+9·0	+5·0	+10·7	+10·5	+12·3	+13·4	+12·4	+11·0	+7·3
Other	+2·0	+2·3	−0·1	+1·9	+2·8	+3·1	+2·6	+1·8	+3·4	+4·2	+3·6	+3·0	0·0	−5·6	−5·7	−0·2	+2·4

* Computed from Ministero di Agricoltura, Industria e Commercio, Ufficio Centrale di Statistica, *Popolazione presente ed assente per comuni, centri e frazioni di comune, Censimento 31 dicembre 1871* (Rome, 1874), I, Parte seconda, 303–5; Ministero dell'Interno, Direzione Generale di Statistica, *Annuario statistico italiano: 1878* (Rome, 1878), Parte prima, pp. 30–1; Istituto Centrale di Statistica, *Annuario statistico italiano: 1951* (Rome, 1951), p. 3; and Istituto Centrale di Statistica, *Annuario statistico italiano: 1953* (Rome, n.d.), pp. 27–8. In this and in other parts of this table data have been adjusted to achieve internal consistency.

† Computed from *Annuario statistico italiano: 1878*, Parte prima, pp. 30–1; *Annuario statistico italiano: 1951*, p. 3; and *Annuario statistico italiano: 1952* (Rome, 1953), p. 29.

‡ Computed from *Annuario statistico italiano: 1878*, Parte prima, pp. 30–1 and *Annuario statistico italiano: 1952*, pp. 23–4, 29.

§ Computed from *Popolazione presente ed assente per comuni, ... op. cit.* (Rome, 1875), II, pp. B, C, F, G, H, and L; and Istituto Centrale di Statistica del Regno d'Italia, *VII Censimento generale della popolazione, 21 aprile 1931*, vol. III: Fascicolo 3, *Provincia di Cuneo* (Rome, 1934), 38, 67; Fascicolo 12, *Provincia di Brescia* (Rome, 1934), 37, 62; Fascicolo 49, *Provincia di Pisa* (Rome, 1934), 34, 53; Fascicolo 53, *Provincia di Ascoli Piceno* (Rome, 1934), 32, 55; Fascicolo 70, *Provincia di Salerno* (Rome, 1934), 40, 46; and Fascicolo 90, *Provincia di Cagliari* (Rome, 1934), 27, 49 and vol. IV, *Relazione Generale*, Parte seconda (Rome, 1934), 100–11, 290–5. Information in this detail concerning literacy has not been collected in a more recent census.

‖ Computed from *Annuario statistico italiano: 1878*, Parte prima, pp. 72–5; and *Annuario statistico italiano, 1953*, p. 34: and based on measurements of conscripts.

¶ n.a., information not available.

** Computed from *Annuario statistico italiano, 1878*, Parte prima, pp. 30–1 and Supplemento, pp. 44a–47a; *Annuario statistico italiano, 1951*, p. 3; *Annuario statistico italiano, 1952*, pp. 250–1; and *Annuario statistico italiano, 1953*, pp. 27–8.

†† Computed from Statistica del Regno d'Italia: *Popolazione classificata per professioni, culti, e infermità principali, Censimento 31 dicembre 1871* (Rome, 1876), III, lxviii–lxix, 12, 26, 27, 28, 29, 94, 96, 111, 113, 131, 133; and Istituto Centrale di Statistica del Regno d'Italia, *VIII Censimento generale della popolazione 21 aprile 1936, Vol. IV, Professione, Parte seconda—Tavole, B) Industria, commercio, ecc.: 1. Regno* (Rome, 1939), 3, 67, 68, 69, 196, 197; and 2. *Province, ibid.* 2, 4. No more recent census information is available. The 1871 figures include men aged 15 and over, those for 1936 aged 10 and over; in each instance agricultural, hunting, and fishing occupations are included.

‡‡ Ministero Delle Finanze e Ministero Del Tesoro, *Annuario dei ministeri delle finanze e del tesoro del regno d'Italia: 1891*, Parte statistica (Rome, n.d.), pp. 72–85; and Ministero delle Finanze, 'Dati Relativi al Gettito dell Imposte Dirette Risultanti dai Ruoli Pubblicati nell'anno 1951', *Bollettino ufficiale legislazione e disposizioni ufficiali*, Supplemento ordinario N. 5, Anno 1952 (Maggio), pp. 26–33, 42–7, 62–73. Certain adjustments were necessary to improve the comparability of these data: (1) tabular values for the taxable income from land in 1890 showed only the entail figures so that it was necessary to multiply each of them by ten to obtain the income values; (2) tabular values for the taxable income from land and special farm income in 1951 were simply reprintings of the 1939 lists, they were brought up to date by multiplying them by twelve—the coefficient stipulated for this purpose by the law of 12 May 1947, number 356; and (3) figures for 1890 were inflated by the factor 14 to put the lira value for tax purposes in 1890 and 1951 on generally the same level.

§§ Derived from Istituto Centrale Statistica e Ministero per la Costituente, *Compendio delle statistiche elettorali italiane dal 1848 al 1934* (Rome, 1947), II, 120–1.

‖‖ Derived from *Annuario statistico italiano: 1952*, p. 129; and Istituto Centrale di Statistica e Ministero dell'Interno, *Elezione della Camera dei Deputati, 7 giugno 1953* (Rome, 1955), I, 86–7, 102–3, 164–5, 248–9, 266–7, 326–7, 384–5.

expenses, under communal jurisdiction.[1] Thus, the extensive development in Ascoli Piceno measures a local vitality and progressiveness from the low level of 1876 to an extremely high one in 1951. Contrasted with this the Brescia figure represents the more conservative extension of a road system already large in 1876.

(3) *Change in the political sphere*[2]—Between the two post-World War II general elections for the Chamber Deputies there was a pronounced shift away from the Centre parties. This change represented not only movements to the Right and to some extent to the Left, but also losses in functional votes through shifts to minor parties unrepresented by seats and to increases in the number of improperly marked or contested ballots. The strong, 60 per cent majority of the Centre was replaced by a 47 per cent plurality.[3] Offsetting gains were a small proportionate expansion to one-third of the total vote by the Left and a large relative increase to one-eighth of the vote by the Right (see Table 4).

Sectionally, the change was important because it gave the Left a clear majority of the seats in Tuscany. Provincially, political strength tends to be greater in areas outside of the more cosmopolitan urban centres. In Pisa the Left, in Salerno the Right, and in the other sample provinces the Centre held substantially larger concentrations than the sections they represented. Apparently this dispersal throughout the country of local concentrations of political parties persisted between the elections. This is evidenced by the similarity of the shifts in political preference between the sample provinces and the sections they represent (Table 5). Thus, the strong shift from the Centre parties of nineteen voters in every hundred in the South plus Sicily is matched by an almost identical change of twenty voters in the sample province of Salerno. Although consistency is not as high in the direction or magnitude of these movements from the Centre, the patterns of change are generally comparable between section and province. These alterations might almost be interpreted as

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[1] One-eighth of the highway system is classified as national, the other seven-eighths as provincial and communal, within the local sphere communal jurisdiction has increased from slightly more than one-half to almost two-thirds. *Annuario statistico italiano* (1878), Supplemento, p. 47-a; and Istituto Centrale di Statistica, *Annuario statistico italiano, 1952* (Rome, 1953), p. 251.

[2] Extremely helpful in preparing this section was Joseph G. La Palombara, 'The Italian Elections and the Problem of Representation', *The American Political Science Review*, XLVII (September, 1953), 676–703.

[3] Classification of parties winning seats in these elections is as follows:

	1948	1953
CENTRE	Christian Democrat (*Democrazia Cristiana*)	Christian Democrat (*Democrazia Cristiana*)
	Democratic Socialist (*Partito Socialista Democratico Italiano*)	United Socialist (*Unita Socialista*)
	Liberale (*Partito Liberale Italiano*)	National (*Blocco Nazionale*)
	Republican (*Partito Repubblicano Italiano*)	Republican (*Partito Repubblicano Italiano*)
LEFT	Communist (*Partito Comunista Italiano*)	Democratic Front (*Fronte Democratico Popolare per la Libertà, la Pace, il Lavoro*)
RIGHT	National Monarchist (*Partito Nazionale Monarchico*)	National Monarchist and Democratic Labour Alliance (*Partito Nazionale Monarchico e Alleanza Democratica Nazionale del Lavoro*)
	Social Movement (*Movimento Sociale Italiano*)	

In both years the popular vote of the uninominal system of the Valley of Aosta was divided among the appropriate categories. In 1948 the vote of the relatively local Peasant Party (*Partito dei Contadini d'Italia*) was added to the Centre; in 1953 the vote of the local Popular Party of the Southern Tyrol (*Partito Popolare Sud Tirolese*) was included in the Centre.

a recurrence of dissatisfaction with the prevailing order and a demand for a shift to a more forceful administration at either extreme of the political range.

(4) *Change in the economic sphere*—As measured by a decline in dependence on agriculture for employment and an increase in certain taxable income, economic gains also followed a sectional pattern. Between 1871 and 1936 one-seventh of the nation's males shifted from agriculture to other employment. Industrialization, especially in the North-west and the North-east, accounts for most of this shift. Notably the actual and percentage developments in Sardinia were much more comparable with changes in the rest of Italy than they were with those of the South (Table 3).

Table 5.* *Changes in the general political preferences of voters in the sections of Italy and in the sample provinces as shown by the elections for the Chamber of Deputies in 1948 and in 1953*

Area, Classification of party	Sections of Italy						
	North-west	North-east	Tuscany	East Central	South plus Sicily	Sardinia	
	Sample Provinces						
	Cuneo	Brescia	Pisa	Ascoli Piceno	Salerno	Cagliari	Italy
	Change in average number of votes per 100						
Sections							
Centre	−11	−8	−8	−16	−19	−17	−13
Left	3	2	1	4	6	9	4
Right	6	4	4	9	10	13	7
Other	2	2	3	3	3	−5	2
Provinces							
Centre	−11	−10	−5	−15	−20	−18	—
Left	4	2	−1	6	8	11	—
Right	7	5	4	5	12	13	—
Other	0	3	2	4	0	−6	—
	Percentage change in average vote from 1948 to 1953						
Sections							
Centre	−18	−14	−16	−27	−31	−27	−22
Left	9	6	3	12	25	47	12
Right	393	300	273	196	99	312	152
Other	48	46	81	113	62	−42	56
Provinces							
Centre	−15	−15	−12	−23	−34	−30	—
Left	41	9	−1	23	52	47	—
Right	558	272	333	167	80	335	—
Other	−1	108	51	140	0	−44	—

* Computed from data and sources given in Table 4. Figures rounded from original data to achieve internal consistency.

Income growths were notably larger in cities and in the North, than in rural areas and in the South. Even at the beginning of the period income was concentrated in urban centres. Thus in 1890, Rome recorded a per capita income of 65,000 lire while the remainder of the East Central section showed only 18,000. For this reason sample provinces, except for Cagliari, since they do not contain the largest centres, tend to show smaller incomes and lower income changes. The decided income advantage given to northern sections of the country by the location of principal urban centres was augmented even further during the period as many of these same centres achieved industrial growth, and so added to their income-producing capacity. In this way northern areas with largest incomes at the beginning registered largest gains, while southern sections with lowest incomes recorded little or no change.

Apparently much the same sectional pattern of development took place in other statistical series. Thus, the expanding gulfs between parts of the country are not confined to the few rubrics noted here but extend probably to the whole field of economic history. For example, even the ethnological measure of the heights of men called for military service, reflecting in part the economic factors of available nutritional and health facilities, behaves in a sectional pattern. Greater movements were recorded in the already generally taller statures of those from the North-west, North-east, Tuscany, and the East Central sections while smaller growths were realized by those from the South plus Sicily and the Sardinia areas. Application of the *t*-test to the published frequency distributions shows the improbability that these differences could have occurred by chance.

V

Even at this level, where the sample is scarcely more than chosen, internal variations suggest themselves. Political unification, the realized goal of the triumvirate, Cavour, Mazzini, and Garibaldi, as well as of millions of other Italians, seems not to have resulted in economic unity. It is true, of course, that custom duties are levied at the national border and internal taxes are largely dictated from Rome. But, more fundamentally, this sampling in depth technique has shown that population groups exhibit growing rather than declining differences in economic well-being.

Thus Italy, viewed as a whole, shows a lifting of living standards since the Risorgimento. Examined internally, the advance has not been general. In fact, improvements in cities are not matched by comparable gains in rural areas; growing differences in urban-rural attractiveness has led to local shortages of farm labour while unemployment persists in almost every urban centre. And higher living standards in northern sections continue to advance while lower standards in the South move ahead only slowly or not at all. In this way growing urbanization and sectionalism, the net results of a complex matrix of historical forces, exemplify an expanding differentiation in Italy.

These growing economic gulfs justify some negation of a frequent assumption—the broadening of suffrage insures a widening of economic opportunity. Even an area as popularly self-determined as Italy may not, under unified control, succeed in narrowing the economic gap between component groups. Although it is obvious that votes in the market are governed by different combinations of forces than votes in an election, further study in depth is needed to trace these divergencies in the labyrinth of economic development. For, clearly, the benefits of Italian unity have not been shared universally.

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[1] More recent income figures show similar changes. Centro Regionale di Richerche Statistiche di Palermo, *Stime del prodotto netto privato della Sicilia nel quadro della ripartizione regionale del prodotto netto Italiano* (Palermo, 1952); and Guglielmo Tagliacarne, 'Calcolo del reddito privato nelle Provincie e Regioni d'Italia per il 1951', *XIII Riunione Scientifica della Società Italiana di Statistica*; these findings are summarized in Associazione per lo Sviluppo dell'Industria nel Mezzogiorno (SVIMEZ), *Statistiche sul mezzogiorno d'Italia, 1861–1953* (Rome, 1954), pp. 683, 685.

THE KNIGHTS OF LABOR IN BRITAIN, 1880–1901

By HENRY PELLING

LITTLE evidence has so far been available to show how it came about that an American labour organization, the Knights of Labor, was able to establish itself, albeit briefly, in Great Britain at a time when the flow both of migration and of trade union influences was strongly in the opposite direction across the Atlantic. The information on which the present article is based has largely been derived from the unpublished official documents of the head office of the Knights, now stored in the Catholic University of America, Washington, D.C.; from the American printed records and journals, which exist in an incomplete form in various libraries in the United States; and from certain sections of the British local press.[1]

I

The Knights of Labor began as a secret organization with, as the name implies, a somewhat masonic ritual.[2] Founded in 1869, the Order was headed from 1879 onwards by Terence V. Powderly, a machinist of Irish origin, with headquarters at Scranton, Pennsylvania, and later at Philadelphia. The Order had an ambitious programme of social and political amelioration, and in this respect may be compared with the grandiose schemes of trades unionism in Owen's day rather than with the cautious and exclusive societies of Gompers's American Federation of Labor or the British Trades Union Congress before the advent of 'new unionism'. It discouraged strike action, which in Powderly's words was 'a relic of barbarism', and preferred to exert pressure on employers, if need be, by means of boycotting. Branches of the Knights were called Local Assemblies, and each was given a number and an official seal, which was stamped on all correspondence as a mark of authority. Local Assemblies were organized into District Assemblies—by 1880 there were 868 of the former and 38 of the latter[3]—and there was also a General Assembly which met annually as a conference of delegates of the Local and District Assemblies. The President of each Assembly was usually called the Master Workman, and he had a Recording Secretary and several other officers to assist him. Powderly himself was styled the General Master Workman, and with him after 1888 was John W. Hayes as General Secretary-Treasurer.

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[1] I am indebted to Dr Clifton Yearley of the University of Florida for assistance in the discovery of source material in the United States. Father H. J. Browne, the Archivist of the Library of the Catholic University of America, extended to me many courtesies while I was working on the Knights of Labor Papers (hereinafter referred to as KLP). I am also grateful to Dr T. C. Barker of the London School of Economics for help with some problems of the glass industry and for references to the *St Helens Newspaper*.

[2] The best general accounts of the Knights in America are by Selig Perlman in John R. Commons *et al.*, *History of Labor in the United States* (New York, 1926), II, and by Norman J. Ware in his *The Labor Movement in the United States, 1860–1895* (New York, 1929). See also William C. Birdsall, 'The Problem of Structure in the Knights of Labor', *Industrial and Labor Relations Review*, v (1953), 532–46.

[3] P. S. Foner, *History of the Labor Movement in the U.S.* (New York, 1947), I, 509 n., quoting *Journal of United Labor*, 15 May 1880. According to the K. of L. *Constitution* (Philadelphia, 1890), p. 36, District Assemblies were to be composed of at least five Assemblies each.

The visionary aims of the Knights did not stop short at the boundaries of the United States, especially in a period of heavy immigration, and Powderly was interested in spreading the Order into Europe. In 1880 he announced that the time was ripe for this,[1] but little was done immediately, possibly owing to the organizing setbacks of the year 1881 in America itself. In 1882 we hear of a nineteen-year-old Huddersfield weaver joining the movement for a time, but this may have been a purely individual membership, and the young weaver concerned—Ben Turner, who was eventually to become chairman of the T.U.C. —was soon busy in his local Weavers' Union, although he kept his Knights of Labor rule-book.[2] In 1883 there is evidence of at least one Assembly established in this country by a visiting organizer, John Hughes. This was Local Assembly 2,886, at Cardiff.[3] It consisted of iron-workers and miners, but nothing more is known about it. Powderly later attempted to get into regular communication with the miners' unions in Britain, and early in 1888 he wrote to Thomas Burt, M.P., the miners' leader, to suggest an exchange of delegates to conventions: but nothing came of this.[4]

In the meantime, however, the task of initiating the Order into Europe had been taken up in a more sustained and effective manner by one of the American Local Assemblies. This was L.A. 300, of Pittsburgh, Pennsylvania, which was in reality not a local branch but a national union of all the window glass workers of America. Although the Knights aimed to recruit all types of workers into 'mixed' Assemblies, there were exceptions to this, and some of the Assemblies were restricted to workers of particular crafts or trades. Among the latter, however, L.A. 300 was unique in its national character and strength. The window glass industry had developed rapidly in America, and especially in Pennsylvania, under the protection of tariffs, and the craftsmen—less than 3,000 of them all told—had managed as a result of the general shortage of skilled labour to build up a position of monopoly in their trade which had no parallel either in England or in Belgium, the other two principal areas of window glass manufacture. The window glass workers of America were anxious to organize their fellow-craftsmen of Europe for reasons which a spokesman of theirs explained succinctly to a Congressional Committee:

> The object...is...to keep us posted as to what is going on over there in Europe, and to prevent the carrying of persons in our trade from one country to another, and, if possible, to regulate wages. It is to see that there are not too many people in any one locality at any one time.[5]

To further these ends—which in their practical character contrasted strangely with the vague idealism of Powderly—the leaders of the American window glass workers acted almost as soon as their national organization had been consolidated in 1880. In the course of that year two of their members, James L. Michels and John Fetters, were sent to Europe to investigate the situation. According to a later account, this was

> ...for the purpose of making an investigation into the condition of the window glass workers in Europe, and, if possible, ascertain why so many window glass

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[1] *Proceedings of the General Assembly, K. of L.* (1880), pp. 175–8.

[2] Ben Turner, *About Myself* (London, 1930), p. 131.

[3] Frederick Turner to Powderly, 11 October 1883 (KLP).

[4] Powderly to Burt, 13 January 1885 (KLP).

[5] U.S. House of Representatives, *Report of Select Committee to Inquire into Alleged Violation of Laws Prohibiting Immigration*...(Washington, 1889), p. 618.

workers come to America under contract for less than current wages, and, if possible, have the European workers form a union and establish a closer communication between America and the old country, in order to protect the interest of all window glass workers.[1]

Although Michels visited England, France, Germany and Belgium, and later apparently claimed to have 'organized trade locals in all of these except Germany',[2] he cannot have had any permanent success in unionizing the English glass workers. But in 1884 L.A. 300 made a much more sustained effort to bring their fellow-craftsmen in Europe into a framework of labour organization. In June of that year Isaac Cline and Henry Burtt, President and Secretary respectively of the Assembly, held a conference at Charleroi in Belgium to found a 'Universal Federation of Glass Workers'. Accompanied by representatives of the French, Belgian and Italian craftsmen, Cline and Burtt appeared a few days later at St Helens, Lancashire, to hold their first Universal Convention, and to make a special appeal to the workers of Messrs Pilkington, the largest window glass factory in the world, which was situated there. According to a local paper, their meetings were well attended and their proposals were warmly received.[3] In September of the same year A. G. Denny, a member of L.A. 300, wrote to Powderly to say that the Assembly had chosen him to visit Europe for a year in order to 'complete as far as possible the organization begun by Bros. Cline and Burtt'.[4] The Executive Board of the Knights promised to pay part of his expenses,[5] and in November, Powderly, writing to him at Sunderland, where the window glass works of James Hartley and Co. were situated, felt entitled to offer some advice. Powderly urged him to use his own discretion in matters of organization, and not to follow too closely the pattern of the Knights inside the United States, for 'the circumstances which surround the working men of Europe are, of necessity, different from those surrounding our people'.[6]

Whether as a result of following this advice, or simply because of the amplitude of the funds at his disposal, Denny was successful in his efforts to consolidate the work of Cline and Burtt. In November 1884 there came into existence Local Assembly 3,504 as the organization of the English window glass workers. It consisted of four 'preceptories' or branches among the workers of the four English firms which made window glass, namely, Pilkingtons at St Helens; William Stock and Co. at Plank Lane, eight miles from St Helens; Chance Bros. at Spon Lane, Smethwick; and Hartleys of Sunderland. The headquarters of the Assembly were at Sunderland; but the other three preceptories each had the privilege of sending a delegate to the second Universal Convention, which was held in Pittsburgh in July 1885.[7] The Rule Book of L.A. 3,504, which was printed in Sunderland, shows that the Assembly consisted of four types of craftsmen—Blowers, Gatherers, Cutters, and Flatteners. For all, the initiation fee was 5*s*. and the dues were 1*s*. 6*d*. per month.[1]

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[1] Biography of James L. Michels in *Official Handbook, Independent Order of the Knights of Labor* (1896), a copy of which is in the library of the University of Illinois.

[2] Statement by James Campbell, President of L.A. 300, printed in *Commoner and American Glassworker*, 8 June 1889.

[3] *St Helens Newspaper*, 21 and 28 June 1884. The latter issue quotes a letter from Thomas Burt and Henry Broadhurst commending the American glass workers for their 'noble and public-spirited' action.

[4] Denny to Powderly, 24 September 1884 (KLP). See also Window Glass Workers' Assembly, *National Convention Report*, 1884, pp. 13 *et seq.*—a copy of which is in the Library of Johns Hopkins University, Baltimore. In the K. of L. Constitution, a special article (xxxi) was devoted to L.A. 300, and its organizers were empowered to form Assemblies in foreign countries.

[5] *Proceedings of the G.A., K. of L.* (1885), p. 70.

[6] Powderly to Denny, 18 November 1884 (KLP).

[7] *American Glassworker*, 17 July 1885.

In 1886 the Universal Convention was again held at St Helens, where the local preceptory was having a hard struggle to keep alive. The choice of meeting-place for the Convention was no doubt made for reasons of organizing strategy as well as for the convenience of the delegates: for it was recognized that the fight to unionize the Pilkington works was a vital one for the Federation. The Convention re-elected James Campbell, a member of L.A. 300, to the Presidency of the Federation, and the journal of the American glass workers praised the European delegates, who were in the majority, for their 'diplomacy' in so doing. The reason was clear: the European branches owed their existence almost entirely to the work of L.A. 300, which had already spent no less than $13,000 in the campaign to organize the window glass workers of England and the continent.[2]

The American leaders had some reason to be disappointed by the slow progress of L.A. 3,504. The English window glass workers, some 1,500 in total number, were of course skilled craftsmen, and had had a union of their own only ten years previously—the Sheet Glass Makers' Association of Great Britain—which had disintegrated in the intervening years of depression. At least one of those prominent in the old union was active in the new organization: this was Thomas Pommellette, who became secretary of the Spon Lane preceptory.[3] At the same time, affiliation with the Knights of Labor was facilitated by the fact that some of the other leaders of the old union had emigrated to America and had joined L.A. 300. The two months' annual summer closing of the American glassworks, which was enforced by L.A. 300, permitted many of these emigrants to return to England for a vacation,[4] and they must have spoken warmly of the advantages of belonging to the Knights.

Yet in spite of these influences the degree of unionization by L.A. 3,504 could not compare with that of L.A. 300. A fair amount of success was achieved at Sunderland and Spon Lane, and at the Spon Lane works even the manager of the rolled plate department—whose members were less skilled than the window glass workers—reported in 1887 that 'all, or nearly all' of his men had joined the Knights.[5] The Sunderland workers were favourably disposed to the Federation after winning a dispute in 1884 with the aid of funds from Italy, Belgium and the United States.[6] But at St Helens, although the preceptory apparently held together for the first year of its existence,[7] no permanent foothold could be maintained. The consistently hostile attitude of the employer evidently played a part in this. In March 1887 the Secretary of the Assembly, Joseph French, wrote to Powderly:

> Our Assembly is composed of nothing but glass workers and we have four Preceptorys in different parts of England and at three of these Preceptorys we

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[1] L.A. 3,504 K. of L., *By-Laws, Order of Business, and Rules* (Sunderland, 1886): copy in Webb Coll. E.-C. 41, ii, Brit. Lib. Pol. Sci. London. For the Rules of an 'Unemployed, Superannuation and Incidental Fund' run by the Assembly, see Webb Coll. E.-C. 42, xx.

[2] *St Helens Examiner*, 24 July 1886; *American Glassworker*, 26 August 1886. Delegates attended from Belgium, France and Italy as well as from the United States and England.

[3] *American Glassworker*, 11 September 1885.

[4] *Commoner and American Glassworker*, 24 August 1889.

[5] Chance Bros. Board Minutes, 20 March 1887. I am grateful to Sir Hugh Chance for supplying me with this reference. The rolled plate workers may have been organized in one or more of the other Assemblies for which see below.

[6] *American Glassworker*, 18 December 1885. [7] *St Helens Newspaper*, 5 December 1885.

> are in good organized condition but at the other place (St Helens) what with the tyrannical disposition of the capitalist and the general depressed condition of the men (through that curse Drink) we are not able to make any progress whatever. . . . 'Messrs Pilkington Bros' are continually discharging our members for no other reason than that they belong to our Society.[1]

It is clear from other correspondence that one special problem was provided by the Secretary of the St Helens preceptory, Joseph Norbury, who was an alcoholic. He lost his job in the works, and French tried to persuade Campbell to allow him into L.A. 300, so that he could find a job in America. Campbell was reluctant to give way on this matter, both for the sake of the interests of his union and because of his own strong temperance convictions.[2] He was finally overborne by Powderly himself, who argued: 'If this man is not allowed to go to work, the people on the other side may begin to think that they are allied to us only for our benefit and not theirs.'[3]

This was but one instance of the way in which the Secretary of L.A. 3,504 sought to use Powderly to exert influence on L.A. 300 in favour of the workers in Europe. French also tried to get Powderly to press L.A. 300 for more financial assistance. As he put it:

> The teachings of Bro. Denny was help yourselves and then we will help you and myself and a few admit the justice of it, but are you going to make the poor depraved creature who has the iron heel of the capitalist already on his neck, see far enough to help himself [?][4]

French thought that it was desirable to take strike action at Pilkingtons in order to win recognition, and urged this course in a letter to Powderly: but the latter demurred and suggested instead that he should get the other manufacturers to help stop the sale of Pilkington glass by some form of boycott—a proposal which French not unreasonably regarded as impracticable.[5] In the ensuing months the preceptory remained very weak, if indeed it had any existence at all. French himself migrated to America later in the year,[6] and James Brown who succeeded him as the Secretary of the Assembly attributed the failure at St Helens to the contract system which was used at Pilkingtons: 'They have them engaged on 6 months contract the one's contract finishes today and another tomorrow so that they cannot all finish together.' He deplored this situation because Pilkingtons employed as many window glass workers as all the other works in England put together.[7]

The failure at St Helens was indeed decisive for the whole English Assembly; and the failure of the English Assembly was, according to an account in the American union journal, decisive for the Universal Federation. According to this source, the cause of failure was to be traced to the existence in England of too many indentured apprentices, who could be used to break any strike of journeymen.[1] L.A. 3,504 was certainly anxious to control the numbers of those who entered apprenticeship, which was for a seven-year period: in 1886 its officers complained to the Royal Commission on the Depression of Trade and Industry that entry into their craft was too open.[2] But this situation was as much a result of union bargaining weakness as a cause of it. A more fundamental cause may be found in the decline of the British industry in the face of American and Belgian competition. Ironically, in England where there was most need for the restriction of entry into the trade, the workers could not limit apprenticeship; while in America where the trade was rapidly expanding, the apprenticeship system was sometimes too strictly enforced. The desire of the European membership of the Universal Federation to remedy this situation by increasing the flow of migrant glass workers was embarrassing to the leaders of L.A. 300, and must have been an important reason for their final withdrawal from the Federation in 1890.

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[1] French to Powderly, 30 March 1887 (KLP). Cf *American Glassworker*, 11 September 1885, where the 'tyrannical vigilance of the Pilkingtons' is contrasted with the attitude of 'the Chance Brothers and Messrs Hartley', who 'have at different times treated our committee with great kindness'.

[2] French to Powderly, 7 February 1887, and Campbell to Powderly, 23 February 1887 (KLP).

[3] Powderly to Campbell, 21 February 1887 (KLP).

[4] French to Powderly, 16 April 1887 (KLP).

[5] Powderly to French, 20 April, and reply, 3 May 1887 (KLP).

[6] French to Powderly, 12 September 1887 (KLP).

[7] Brown to Beatrice Potter, 30 November 1891 (Webb Coll. E.-A. 43.398).

As part of their general policy of restricting entry to the trade, L.A. 300 had lobbied Congress for the enactment of a Contract Labor Law, which would prevent American industrialists from bringing foreign workers into the country with a promise of employment on arrival. The law that was enacted in 1885, and amended in 1887 and 1888, was largely the result of pressure by the leaders of the Knights of Labor.[3] In keeping with this policy, they insisted on the removal of a clause from the draft constitution of the Universal Federation, which would have guaranteed the members of the affiliated unions the right of free movement from one national organization to another. According to James Campbell, its President, this change 'came very near breaking up the Federation'.[4] As we have seen, the officers of the American union found it convenient occasionally to sanction the immigration of European craftsmen, especially if they had lost their jobs through union activity. But on the whole the effect of the Federation's existence, as L.A. 300 had intended, was to slow down the migration of window glass workers; and James Brown the secretary of the English Assembly declared that 'The English members of L.A. 3,504 look upon the Federation as an organization to keep them from going to America to work and have so expressed themselves, and I know it has kept many from doing so.'[5]

Early in 1889, however, James Campbell, who had visited L.A. 3,504 the previous year on his way back to America from the Universal Convention at Charleroi, sanctioned the admission to the United States of a number of English glass workers—among them the veteran unionist Thomas Pommellette—to fill vacancies at a new plant at Jeannette, Pennsylvania. In view of Campbell's political activities in earlier years to secure the Contract Labor Law, this seemed to be a highly inconsistent action, and he was at once accused of being in the pay of the Jeannette firm.[6] In the circumstances of American industrial life, in which 'collusive contracts' between union leaders and employers were not uncommon, the charge did not seem wholly unlikely: indeed, not long afterwards L.A. 300 did enter into a 'collusive contract' with the largest employer, the American Window Glass Co., which ended in the disruption of the union.[7] But on this occasion Campbell had a satisfactory explanation of his conduct. He argued that the Assembly had previously placed too strict limits on apprenticeship, and that this policy, combined with the limitation of the Contract Labor Law, had left the industry short of skilled men just at the time when the growth of natural gas facilities had led to a considerable expansion of plant. The workers concerned, as he pointed out, had had their fares paid by L.A. 3,504 and not by either L.A. 300 or by the Jeannette employer, and so the law was not violated; and appropriate steps had been taken to ascertain that no American workmen were available for the jobs. In spite of a strong newspaper campaign against him and the institution of inquiries into the case by a Congressional Committee and the Department of the Treasury, Campbell's conduct was endorsed at the Annual Convention of L.A. 300.[1]

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[1] *Commoner and Glassworker*, 16 July 1892.

[2] *Parliamentary Papers*, 1886, XXII, 98.

[3] Ware, *Labor Movement in the U.S.* p. 197.

[4] *Commoner and American Glassworker*, 8 June 1889.

[5] *Ibid.* 24 August 1889.

[6] *National Labor Tribune* (Pittsburgh), 6 July 1889.

[7] U.S.Commissioner of Labor, *Eleventh Special Report* (Washington, 1904), pp. 601 *et seq.* The Assembly was given a block of shares in the company, and its President was appointed a Director.

Nevertheless, at the Universal Convention of the following year L.A. 300 withdrew from the Universal Federation,[2] and it may by surmised that the Jeannette affair combined with the lack of success in unionizing the English craftsmen in leading to the decision. Without American participation, the Universal Federation must soon have disappeared. Its secretary throughout its life had been a Belgian, Albert Delwarte, who had built up an organization in his own country, had visited the General Assembly of the Knights in 1888, and had helped L.A. 3,504 in a two-months' tour of the English preceptories in 1889.[3] Delwarte reorganized the Plank Lane preceptory, found 300 Belgian francs for a strike at Sunderland, and prevented Hartleys from importing Belgian strike-breakers. But the Belgian organization had never been complete, and without the support of the Americans there could be little prospect for the Federation's success. The salary of over a thousand dollars a year, which Delwarte had been receiving from L.A. 300,[4] must now have lapsed. The English Assembly remained in touch with the American Knights, and received occasional financial help from L.A. 300, but soon fell into decay. The preceptories at Spon Lane and Sunderland were still in existence in 1891, but the former collapsed at the end of the year after the failure of a six-months strike.[5] The Sunderland preceptory, though retaining a membership of a hundred in the summer, was evidently in a parlous condition, for, according to Brown, most of its members had been out of work for fifteen months by July 1892.[6] Hayes, in reply to Brown's letter, suggested that the Assembly should recruit in other industries or incorporate local unions on the pattern of the Knights in the United States, but Brown was pessimistic about this suggestion, which seemed to him far less practical in Northern England than elsewhere:

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[1] Window Glass Workers' Assembly, *National Convention Report* (1889), p. 51—a copy of which is in the Library of Johns Hopkins University; 51st Congress, *Reports of Committees of the House of Reps.* (Washington, 1891), II, 344–6, 352.

[2] U.S. Commissioner of Labor, *op. cit.* p. 615.

[3] *Proceedings of the G.A., K. of L.* (1888), pp. 77–81; *Commoner and Glassworker*, 1 February 1890.

[4] James Campbell, 'The Window Glass Blowers' Association', *Annual Report of the Secretary of Internal Affairs of the Commonwealth of Pennsylvania, 1888* (Philadelphia, 1889), Part III, section F, p. 36.

[5] The strike was the result of an attempt by Messrs Chance Bros. to introduce a new system of piece payment, which the preceptory claimed would involve a serious loss of earnings for many of their members. See *Smethwick Weekly News*, 18 July 1891 and 2 January 1892; Board of Trade, 'Report on the Strikes and Lock-Outs of 1891', *Parliamentary Papers*, 1893–4, LXXXIII, Part 1, 608. In the course of the strike the Spon Lane preceptory was accused of receiving £100 per week from America (*Smethwick Weekly News*, 22 August 1891), and they apparently sent a delegate to America to secure L.A. 300's support before they went on strike (*Birmingham Daily Gazette*, 13 July 1891). The Assembly itself received 100 guineas for its strike fund about this time from L.A. 300 (*Sunderland Herald*, 11 July 1891).

[6] Brown to Hayes, 23 July (KLP). The strike was caused by an attempted wage reduction of 10%. After about seven months, work was resumed pending submission of the dispute to arbitration; but the works took fire a week later and the men were unemployed once more. See Board of Trade, *loc. cit.*; *Sunderland Herald*, 23 September 1891 (letter from Brown explaining the causes of the strike).

> As for the efforts for organization we have done our best but in the North of England they are all large trade organizations the Boilermakers, Engineers, Shipwrights, National Labourers' Union & Cetra & believe in their own principles and customs...[1]

There is little doubt that the Assembly died shortly afterwards. In the prevailing depression of the English window glass trade, which was accentuated by the McKinley tariff of 1890, there was little hope of success: and indeed the Sunderland works of James Hartley and Co. were shortly afterwards closed down.[2]

II

This is, however, by no means the whole story of the development of the Knights of Labor in Britain. For from the nucleus of the window glass workers, the propaganda of the Order spread into other trades. James Sexton, the dockers' leader, tells in his autobiography how in 1883 or 1884 after a visit to Merseyside by an American organizer—perhaps a glassworker on his way to St Helens—he and other dock labourers at Bootle formed a branch of the Order which was broken up after a very brief and unsuccessful strike in 1885.[3] In the Midlands, however, the Order spread with more success. The Spon Lane preceptory of L.A. 3,504 apppears to have been the starting-point of a local movement which led to the formation of many 'mixed' Assemblies, catering for workers in all trades and occupations. The general willingness to participate in arbitration for the settlement of wages, which was notable at the time in the area, was a factor which favoured the Knights in the Midlands. In September 1886 a member of the Order used the correspondence column of the West Bromwich *Labour Tribune* to urge recruitment to the Knights, for the purpose not of strikes but of 'causing a more friendly relation to exist between employer and employed'. The writer maintained:

> We should be as well informed on all matters pertaining to our definite trades as our employers, so that when we have conference with them we can prove by our intelligence that we are as much interested in the trades as they are.[4]

In the same year a meeting was held of the leaders of several small iron trade unions in the neighbourhood, to discuss 'a system of federation for all Trade Societies or the advisability of joining the Knights of Labor in America'. Although this meeting resulted, not in the extension of the Knights, but in the establishment of the Midland Counties Trades Federation, it is clear that the Knights had aroused a good deal of local interest.[5] The *Labour Tribune*, which circulated fairly widely among Midland miners and ironworkers, gave much publicity to the American Knights, and reported in detail such events as

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[1] Hayes to Brown, 12 August and reply 31 August 1892 (KLP).

[2] H. J. Powell, *Glass-making in England* (Cambridge, 1923), p. 118; T. C. Barker and J. R. Harris, *St Helens 1750–1950* (Liverpool, 1954), p. 448.

[3] J. Sexton, *Sir James Sexton, Agitator* (London, 1936), pp. 79 *et seq.* Sexton says that the dues were 1½*d.* per week.

[4] *Labour Tribune* (West Bromwich), 16 September 1886.

[5] *Labour Tribune*, 1 May 1886.

Cardinal Manning's expression of approval for the Order.[1] By May 1888 the Knights were reported to be active among the chemical and ironworkers of Oldbury and among the nail makers of Black Heath and the chain makers of Cradley, and in Smethwick even shopkeepers were said to be joining.[2]

The details of the work of these Assemblies have been obscured by the semi-secrecy which still surrounded the Order. The documents at Washington, however, and the *Journal* of the American Knights, provide some of the information that we require. A number of Local Assemblies were founded in 1886–7: L.A. 7,952 at West Bromwich, the first of the new crop of 'mixed Assemblies', was closely followed by L.A. 9,086 at Cradley Heath and L.A. 9,608 at Handsworth;[3] L.A. 9,770 was founded at Winson Green, Birmingham, in February 1887;[4] and L.A. 10,227 was started at Smethwick in May 1887 with an initial membership of twelve, which rose to 300 by March 1888.[5] All these Assemblies, it should be noted, were within five miles of Spon Lane; and in July 1887 they were organized into a District Assembly (D.A. 208) with headquarters at Handsworth, and with a total membership at the outset of 670.[6] According to the District Secretary, Richard Hill: 'With the proximate exception of the glass-workers all our Assemblies are of mixed trades, no one trade or branch even having a large representation, let alone an exhaustive one.'[7]

At the 1888 General Assembly of the Knights in America Powderly claimed that 'In England our Order is in a most prosperous and healthy condition',[8] and this statement was justified by the progress of the West Midland Knights, who had now formed another District Assembly, No. 248, based on Cradley Heath. Jesse Chapman, the Master Workman of the vigorous L.A. 10,227 at Smethwick, deserved much of the credit for this expansion. To publicize the Knights, he had arranged a special meeting of about a thousand members, and with Powderly's help had secured the services of Michael Davitt as the principal speaker. Davitt, who had attended the General Assembly of the Order held at Minneapolis in the previous year, was named the first District Master Workman of D.A. 208.[9]

Chapman was a man of some education—he was the headmaster of an elementary school at Smethwick—and he was also an able organizer. His choice of Davitt as speaker and officer of the Assembly was a shrewd move. Not only was Davitt warmly sympathetic to the Knights by virtue of the Irish origin of their American leader and of a large proportion of the American membership; but his appeal as an Irish labour leader to the largely Irish unskilled workers of the Birmingham area was naturally strong. Since the meeting was restricted to members of the Order, the Local Assemblies may have secured many new members whose first aim was to hear Davitt speak. William Clarke, the Fabian journalist and lecturer, who supported Davitt on the platform, probably wrote the account of the meeting which appeared in the London *Star*, and which stated that there were altogether 4,000 Knights in England 'in good standing'. This figure, which receives confirmation from the Annual Report of the American Knights, suggests a ten-fold expansion from the nucleus provided by the window glass workers' Assembly.[1]

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[1] *Labour Tribune*, 7 May 1887. The paper ran a serial by an American authoress (Mrs Charles C. Crawford of Minneapolis) which ended in the issue of 5 May 1888 with the formation of an Assembly of the Knights.

[2] *Birmingham Daily Mail*, 16 May 1888.

[3] A. Wilkins to Powderly, 4 April and reply, 19 April 1887 (KLP).

[4] Letter from C. Mullinew, n.d. received by Hayes 3 September 1889 (KLP).

[5] J. Chapman to Powderly, 3 March 1888 (KLP).

[6] *Proceedings of the G.A., K. of L.* (1887), p. 1,850.

[7] Hill to Gen. Sec., K. of L. 24 September 1887, printed in *op. cit.* pp. 1,770 *et seq.*

[8] *Report of the General Master Workman, 1888* (Philadelphia, 1888), p. 19.

[9] Chapman to Powderly, 12 May 1888 (KLP); T. V. Powderly, *The Path I Trod* (New York, 1940), p. 183. An article in *Reynolds's Newspaper* of 10 July 1887 had urged Davitt to sponsor the Knights in Britain.

The meeting, although not public, was widely reported, and a leader writer in the influential labour weekly *Reynolds's Newspaper* wished the Knights success, and added: 'We are glad to know that there will be little of that secrecy about the new organization which raised suspicion during the first eleven years of the existence of the present society in America.' Davitt was reported as having said that the Knights would seek recruits in '...skilled industry and unskilled industry, from the agricultural labourer to the scientist in his laboratory, from the chimney sweep to the skilled engineer'.[2] This willingness to organize the so-called unskilled occupations was signalized at the meeting by the presence of Richard McGhee, a close friend of Davitt's and an ardent social reformer who was shortly afterwards commissioned as a Knights of Labor organizer, nominally associated with L.A. 10,227 of Smethwick but in fact operating in the Glasgow area.[3] McGhee later declared that he had taken no part in the development of the Knights on Clydeside, having decided to devote all his attention to the organization of a dockers' union, which he founded at Glasgow in February 1889 and which grew into the National Union of Dock Labourers.[4] On Merseyside, McGhee's union actually came into conflict with an Assembly of the Knights, L.A. 443, which had been founded at Bootle in 1889, primarily to cater for stevedores, although it later recruited workers in other trades in Liverpool, for whom early in 1890 it began to form 'preceptories' after the fashion of the original window glass workers Assembly.[5] In August of 1889 Sam Reeves, a Liverpool Social-Democrat who was the Master Workman and moving spirit of L.A. 443, announced that the Assembly had secured contracts with leading master stevedores and shipping companies in the port, and urged the men not to join in a strike which McGhee's union was planning for the new year.[6] The National Union retorted with accusations of collusion with the masters, and as a result of strike action seems to have rapidly won the allegiance of most of the Liverpool dockers: by the end of 1890 Reeves was complaining of poor attendance at the meetings of L.A. 443.[7] But the work of the Knights in getting the dockers interested in unionism was not without importance: and, as we have seen, James Sexton, the Liverpool docker who became the General Secretary of the union in 1893, had himself at one time been a member of the Order, though presumably not of L.A. 443, which was only founded in 1889, nor of L.A. 647 of Liverpool which existed in 1888 but apparently not earlier.[8]

Elsewhere, too, the Knights came into conflict with other unions whose jurisdiction they threatened. L.A. 10,227 of Smethwick, for instance, ran into competition with the Amalgamated Society of Engineers, which ordered its members to sever their connexions with the Knights on pain of expulsion from the A.S.E.[1] In the same area, the leaders of the Amalgamated Association of Iron and Steel Workers were concerned about the progress of the Knights in their trade. The *Labour Tribune*, in spite of its initial support of the Knights, in November 1888 commented with approval on the report that Smethwick ironworkers were deserting the Knights for the A.A.I.S.W.[2]

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[1] *Star*, 14 May 1888; *Report of the General Secretary, K. of L.* (1888), p. 4.

[2] *Reynolds's Newspaper*, 20 May 1888. It will be noticed that there is no mention of female labour. The English Knights seem to have largely ignored the women workers, though at least one active woman leader of the American Knights, Mrs Leonora M. Barry, visited Britain on tour: see *Birmingham Daily Gazette*, 8 August 1889.

[3] See 'Register of Organizers, 1886–8', which is preserved among KLP.

[4] Speech by McGhee at Liverpool, reported in *Bootle Times*, 22 February 1890.

[5] *Halfpenny Weekly* (Liverpool), 11 and 25 January 1890.

[6] *Bootle Times*, 31 August 1889.

[7] *Ibid.* 18 October 1890.

[8] *Journal of United Labor*, 23 June 1888.

Some small local unions, however, which were struggling to keep alive in adverse circumstances, regarded the Knights as a trades federation which they might rely on for mutual support. This was what happened at Walsall, a town of numerous small industries where the Order was apparently introduced by a small employer in the lockmaking trade, Haydn Sanders, who had attracted notice locally as a Social-Democrat and had been elected a town councillor in 1888. Sanders was Master Workman of L.A. 454, probably founded in that year, and his vigorous activity on the council and in support of local unionism caused several local unions, such as the Bridle Bit Forgers and Filers Society, and the Saddle-tree Makers, to join the Knights in a body.[3] In November 1889 the Knights put up two candidates at the municipal elections, and although both were defeated they polled a high aggregate vote.[4] Sanders was able to take the initiative in the formation of the Walsall Trades Council, of which he became the first secretary.[5]

The nature of the industrial situation at Sheffield and Rotherham was probably similar, and here the Knights were able to form a District as at Birmingham and Cradley Heath. There were apparently altogether ten Assemblies in the area early in 1890, five of them at Rotherham.[6] There were at least ninety members of the Order in one ironworks;[7] and one of the local officers in 1888 was Jabez Hall, then only nineteen years old, and later to become the Midland Divisional Officer of the Iron and Steel Trades Confederation.[8] Some of these Assemblies in the Sheffield area were probably small local unions which decided to join the Knights in the days of their success in the Midlands. In one important instance, however, it was the Knights who brought a local union into existence—important because the union established itself on a permanent basis and acquired a national status. In 1890 a number of Rotherham stove grate workers, who were members of the Order, went on strike for an increase in pay, and appealed to the Birmingham Knights for assistance.[9] The upshot was that the Spon Lane glass workers and possibly others sent money, and Haydn Sanders went over to Rotherham from Walsall, took charge of the strike which was won after several weeks, and founded the National Union of Stove Grate Workers, with headquarters in Rotherham but with branches in several other centres of the trade.[10]

Sanders transferred his other Walsall activities to Rotherham, and was elected to the School Board in 1890, though defeated at the Town Council elections at the end of the following year.[11] As time went on, mention of the

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[1] Chapman to Powderly, 12 May 1888 (KLP).

[2] *Labour Tribune*, 17 November 1888.

[3] *Halfpenny Weekly*, 22 February 1890; *Walsall Observer*, 11 January 1890.

[4] *Walsall Observer*, 26 October and 2 November 1889.

[5] *Ibid.* 22 March 1890.

[6] *Halfpenny Weekly*, 8 and 22 February 1890.

[7] *Smethwick Weekly News*, 11 July 1891.

[8] *Birmingham Weekly Despatch*, 8 October 1940. I am grateful to Miss G. Hall for this reference, which is to an obituary notice of her father.

[9] *Rotherham Advertiser*, 8 March 1890.

[10] *Ibid.* March–September 1890, see also the union's brochure, *Jubilee Year of the Union, 1890–1940* (Rotherham, 1940), p. 2.

[11] *Rotherham Advertiser*, 15 November 1890 and 7 November 1891.

Knights of Labor became less and less common in his utterances, although he had declared at the foundation of the Stove Grate Workers Union that arrangements would be made for its affiliation with the Order. In 1891 he founded a Rotherham Trades Council, of which he became the first secretary; the local Knights were admitted to membership of this body, together with the established local organizations including branches of the Yorkshire Miners.[1] At this time the District organizer of the Knights was Arthur Nadin, who was also Recording Secretary of L.A. 1,266 at Masborough (part of Rotherham) and a member of the Stove Grate Workers Union. He was keenly sensible of the international ramifications of the Order, and wrote to Powderly to find out what he could about the American Knights.[2] In August 1891 he did his best to repay the debt that the Rotherham Knights owed to the Spon Lane glass workers: 'He warned Messrs Chance that before they beat the men at Spon Lane they would have to beat not only Yorkshire and its surrounding districts but also Ireland and Scotland, and before these were beaten America would bring up reinforcements....'[3] But these brave words as we have seen did not save the Spon Lane preceptory from an early death.

Traces of certain other Assemblies in England may be found in the British and American labour press: for instance, at Wolverhampton and Derby,[4] and even as far North as Jarrow in Durham—probably an offshoot, this, of the Sunderland preceptory of the glass workers. The Jarrow members, however, seem to have felt their isolation: in 1889 they founded a body called the 'Independent Order of the Knights of Labour', which to judge by its rules was expected to become a nation-wide organization with 'lodges' in all the principal towns of the country.[5] With this exception, and that of Liverpool, which was near the St Helens preceptory of the glass workers, the Knights were all concentrated in a comparatively limited area of the Midlands. It was remarkable how completely unsuccessful they were in the London area, where Powderly had commissioned an organizer in 1886.[6] This failure in London largely accounts for the fact that trade union historians, including the Webbs, have not noticed the ramifications of the Order elsewhere in Britain.

Powderly, however, was impressed by the success of the Midland Assemblies, and was keen to see further development of the Order in Europe. He declared that he would have been willing to visit England in 1888 'were it not for a very weak stomach which would turn over with the least sea motion'.[7] Early in 1889 it was reported that, notwithstanding his weak stomach, Powderly would visit Europe to attend the 'World's Fair' (the International Exhibition in Paris), and Chapman strongly urged him to visit Smethwick, saying 'We need advice, direction, and guidance from time to time'.[8] But in the end Powderly—who was not a very strong-minded character—abandoned his plans for going abroad, and thus failed to see the English Knights at the peak of their strength. In 1889, as a hostile critic put it, 'thousands joined, expecting half-crowns for shillings',[1] and in May they were able to claim a total of fifty local branches and altogether over 10,000 members in the three Districts.[2] The Districts were apparently co-ordinate in power, and when Chapman went as sole representative of the English Knights to the Paris Congress of the International, he was accredited as delegate of no more than D.A. 208.[3]

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[1] *Ibid.* 26 September 1891.

[2] Nadin to Powderly, 20 May 1891 (KLP).

[3] *Rotherham Advertiser*, 29 August 1891.

[4] *Journal of United Labor*, 10 August 1888 and 17 October 1889.

[5] 'Report on Trade Unions', *Parliamentary Papers*, 1893–4, CII, 108; 'Report of Chief Registrar of Friendly Societies', *Parliamentary Papers*, 1893–4, LXXXIV, 428; *Rules of the Independent Order of the Knights of Labor* (Jarrow, 1890), a copy of which is in the files of the Chief Registrar of Friendly Societies.

[6] 'Register of Organizers, 1886–8' (KLP). His name was James Russell Walker, of Notting Hill, and the commission dates from 3 December 1886.

[7] Powderly to Chapman, 7 April 1888 (KLP).

[8] Chapman to Powderly, n.d. ? January 1889, and reply 8 February 1889 (KLP).

The nature of the financial links between the English Assemblies and the headquarters of the Order is indicated by some correspondence of L.A. 9,770 of Winson Green, which has survived among the papers at Washington.[4] The Secretary of the Assembly was in 1889 and 1890 sending regular small remittances to the General Secretary-Treasurer in Scranton, Pennsylvania: 17*s.* in August 1889, 9*s.* 9*d.* in January 1890, and 23*s.* 3*d.* in July 1890. The July sum included quarterly dues of 1½*d.* per member, and a per capita levy of 5 cents (2½*d.*), as well as payment for copies of the *Journal of United Labor*, the official organ of the American Knights.[5] The total dues paid by members of the Knights in the Midlands were apparently 2*d.* per week, which was less than half the sum of 1*s.* 6*d.* per month paid by the skilled craftsmen of the window glass workers Assembly. But by July 1890 the Winson Green Knights had dwindled to a total of twenty-two, and only four or five of them would make the effort to attend meetings. In his letter of that month the Recording Secretary (C. Mullinew) announced that the Assembly was disbanding and its charter and seal were being handed over to the District Assembly.

The regular contributions, however, which the Assemblies were supposed to forward to the American headquarters, do not tell the whole story of the financial relations concerned. On the one hand, the General Executive of the Knights would occasionally make special subventions, and L.A. 7,952 received $100 in this way in 1886 or 1887, in order to fight wage reductions.[6] On the other hand, the Assemblies sent voluntary contributions in response to appeals from America: D.A. 208 sent £20 to help an American District Assembly in 1887, and several Locals appear on the list of those which answered Powderly's appeal for propaganda funds in 1888.[7] In later years both the Birmingham and Cradley Districts were importunate in demands for help from the General Executive, but the American Knights were in no state to continue the financing of the Order abroad.[8]

Apart from the financial relationship, the connexion with America was in many ways a help to the Knights in their recruitment, at least in the early stages of expansion: for the workmen liked to have the knowledge that they belonged to a powerful international organization. When one of the Smethwick Knights was asked if the Order had any connexion with the Chicago Anarchists, he replied in the negative, but boasted that one of the American members was the poet John Greenleaf Whittier.[9] On the other hand, the marked decline in total membership of the American Knights after 1886 was used as early as 1888 to discredit the English Assemblies.[1] The greatest disadvantage of the American connexion, however, was that it proved to be impossible to register the Order under the Trade Union Acts while it remained dependent on the headquarters in the United States. Consequently, funds belonging to the Order could not be recovered in the event of embezzlement by any of the officers. The failure of a prosecution to recover funds in August 1890 undoubtedly caused a severe loss of membership and led to an attempt to centralize the Order in Britain and to alter the constitution of the Assemblies accordingly. A conference at Smethwick attended by thirty delegates from various Assemblies, mostly in the Birmingham area, resolved to establish a National Assembly, to 'draft an English preamble', to raise the contributions to 3*d.* a week, to form a general assistance fund, and to set up a funeral fund for each Assembly.[2] There seems to have been some difference of opinion between the Birmingham and Cradley Districts as to how these decisions should be carried out, and a good deal of delay ensued, in the course of which the membership continued to dwindle.[3] In the end, a constitution was proposed which gave the British Knights 'the same powers of government as the General Assembly in America', and this was approved at a special conference of English delegates at Smethwick in August 1891.[4] The 'British National Assembly of the Knights of Labour' with headquarters at Cradley Heath, was duly registered with the Registrar of Friendly Societies in October 1891, and appears to have included both the Cradley and the Sheffield and Rotherham Districts, but not the Birmingham District, which remained under its old constitution. To comply with the regulations of the Trade Union Act of 1871 the National Assembly was to be governed by an Executive Council, and its subscription was fixed at 4*d.* a week. However, it was now too late to arrest the decline of membership: and by the end of 1892, when the first return was made to the Registrar, the National Assembly could claim only 434 persons paying contributions.[5]

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[1] *Smethwick Weekly News*, 11 July 1891.

[2] *Halfpenny Weekly*, 1 June 1889.

[3] *Report of the International Workmen's Congress* (London, 1889), p. l, a copy of which is in the John Burns Library of the T.U.C.

[4] Mullinew to Hayes, n.d. ? August 1889; 14 January 1890; 22 July 1890 (KLP).

[5] According to the K. of L. *Constitution* (1890), the quarterly dues to be paid by each L.A. were 6 cents per member.

[6] *Proceedings of the G.A., K. of L.* (1887), p. 1,349.

[7] *Ibid.* p. 1,771; *Journal of United Labor*, July–August 1888.

[8] *Report of the General Executive Board, K. of L.* (1888), p. 131; (1889), pp. 5 and 6.

[9] *Birmingham Daily Mail*, 16 May 1888.

The distinctive features of the industrial tactics favoured by the Knights were willingness to arbitrate with employers and a preference, in the event of an unresolved dispute, to use some form of boycott rather than a strike. This, of course, was in accordance with the policy of the American leadership. In 1888 the Birmingham Knights induced the turners in the cast-iron hollow ware trade, many of whom belonged to the Order, to accept arbitration with their employers rather than go on strike;[6] and at the end of 1889 Haydn Sanders could claim that the English Knights had so far been involved in only four strikes in spite of having encountered innumerable disputes.[7] There is no evidence of successful boycott action having been carried out, but the West Midland Assemblies were known to favour efforts to mobilize public opinion in this way against owners of factories or retail shops where the workers were seriously underpaid or overworked.[8] Such a policy of 'non-intercourse' had been widely practised by American labour long before 1880, when Parnell, who had just visited America, advocated its use in Ireland, one Captain Boycott being the first to suffer. In England, however, as in America, the leaders of the Knights were frequently forced into strike action by the pressure of the rank and file.

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[1] *Ironworkers Journal* (Darlington), September 1888; *Labour Tribune*, 7 September 1889.

[2] *Birmingham Workman's Times*, 15 August 1890 (for a first prosecution) and 29 August 1890 (for the conference); see also *Oldbury Weekly News*, 4 October 1890 (for a second prosecution).

[3] *Smethwick Weekly News*, 11 July 1891.

[4] *Rotherham Advertiser*, 29 August 1891.

[5] 'Report on Trade Unions', *Parliamentary Papers*, 1894, XCIV, 84; *Rules of the British National Assembly of the Knights of Labour* (1891), p. 27, copies of which are in the files of the Chief Registrar of Friendly Societies, and in Webb Coll. E.-C. III, VI.

[6] *Oldbury Weekly News*, 4 October 1890.

[7] *Walsall Observer*, 7 December 1889.

[8] *Smethwick Weekly News*, 11 July 1891.

Another decision of the conference of the Knights in August 1890 was to 'formulate a programme of action in national and local politics'. This was in accordance with the precepts of Powderly, who was taking increasing interest in political action at this time. The British Knights decided to support the Labour Electoral Association, a body which had been set up by the T.U.C. and which had increasingly committed itself to the Liberal Party cause. T. R. Threlfall, the secretary of the L.E.A., had been giving the Knights some publicity in the Liverpool *Halfpenny Weekly*, for which he wrote regular 'Labour Notes', and in February 1890 he had circularized the Assemblies asking them to join the L.E.A.[1] The Association's conference report of the same year includes among its list of affiliated organizations, not only the two District Assemblies of Birmingham and Cradley Heath, but also Locals 443 of Bootle and 454 of Walsall, represented respectively by Sam Reeves and Haydn Sanders.[2] It is not to be supposed that these two men, both of them Socialists, were enthusiasts for Liberal-Labour politics: they presumably attended for the sake of converting the Association to a more radical policy, as other Socialists had done at earlier conferences, though without success.

In November 1889 Secretary-Treasurer Hayes of the American Knights reported as follows to the General Assembly:

> Since the close of our last session we have extended the organization into France, Scotland, Ireland, and Australia, and have made a large increase of membership in England, largely due to the efforts of Brother James P. Archibald, while lecturing through Great Britain under the direction of the General Master Workman.[3]

Although some of the leaders of the English Knights might have resented the attribution of their success so fully to Archibald, rather than to their own efforts, there is no doubt that his visit was a great success. On his departure he was given a 'valuable time-piece' as a mark of appreciation by the English Assemblies,[4] and he carried back to Powderly as a present from Chapman an inscribed copy of Thorold Rogers's *Work and Wages*. According to his own account, the leaders of the two West Midland Assemblies 'vied so much with one another' for his attentions that 'I feared I would be unable to please them both'. As for Chapman, Archibald found him to be 'an elegant fellow, a man of culture and many attainments'.[5] He insisted upon Powderly writing to England to acknowledge, on behalf of the Order, the hospitality that he had received.

Archibald, as an Irishman and Catholic, laid great stress in his lectures in England on the Catholic Church's approval of the Knights.[6] He also appears to have done much to set on foot the development of the Order in Scotland and Ireland. The Scottish District of the Knights, which was set up in Glasgow possibly in July 1889, may owe its foundation to his efforts. Early in 1890 its District Master Workman was J. Shaw Maxwell, a lithographer by trade who was also active in Keir Hardie's Scottish Labour Party.[1] In that year the District claimed a total of twelve Assemblies and a membership of 3,000, and a Local Assembly with eighty members was founded early in the year as far afield as Ardrossan in Ayrshire.[2] In Ireland, the first Assembly—L.A. 1,566, 'Erin's First', founded at Belfast early in 1889[3]—apparently predated Archibald's tour by some months; but he may have had a part in the formation of the Londonderry Assembly, L.A. 1,601, which received its charter in August 1889. In 1891 the Recording Secretary of L.A. 1,601, William Stewart, took the same view as the Birmingham Knights in urging on Hayes the case for the foundation of a 'National State Assembly' in Great Britain, which, he pointed out, would enable them to be registered officially.[4] 'I may remark', said Stewart, 'that registering it would help to overthrow the prejudice that our Order is illegal what the Trades Council & their tools the Gas Workers Union has cast among our members and the general public.' This prejudice no doubt accounted in large part for the fact that, in spite of his optimism, Stewart had to admit that although 667 persons had at one time or another belonged to his Assembly, only about a hundred remained at the time as financial members. In later letters of the same year Stewart promised to maintain ties with the American General Assembly in preference to association with the English Districts; but he also complained of a failure of the American office to answer his letters, and the correspondence appears to have lapsed before the end of 1891.[5]

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[1] *Halfpenny Weekly*, 22 February 1890.

[2] *Labour Electoral Congress Report* (Southport, 1890), p. 3. According to the 1891 *Report* (Manchester, 1891), p. 37, only the two District Assemblies remained affiliated after 1890; and no mention of any Knights occurs in later years.

[3] *Proceedings of the G.A., K. of L.* (1889), p. 19.

[4] *Journal of United Labor*, 14 November 1889.

[5] Archibald to Powderly, 20 October 1889; Powderly to Chapman, 9 March 1890 (KLP). Powderly reciprocated with his own book, *Thirty Years of Labor*.

[6] *Labour Tribune*, 31 August 1889, reporting a speech by Archibald at Walsall.

III

The disintegration of the British Knights was rapid, and there were few relics of the movement as such after 1892. By the time that the Sunderland preceptory of the window glass workers had disappeared, there was little left of the Midland Knights: the National Assembly, which claimed 3,000 members in 1890–1, was below 500 in 1892 and apparently died in 1894.[6] The Birmingham District, which seems never to have joined the National Assembly, must have died at about the same time, after vainly demanding advice from Powderly on how to halt the decline.[7] The only known surviving group under the title of Knights of Labour after that time was the so-called 'Independent Order' at Jarrow, which struggled on locally until 1901 as a sick benefit society.[8]

The speed with which the Assemblies disappeared suggests that they had never found a *raison d'être* in Britain comparable to that of the 'new unions' which managed to survive the depression of the early 1890's. Indeed without the generosity of the American window glass workers—a generosity based on craft interest—the Knights would probably never even have secured their hold in the West Midlands, where industrial conditions most strongly favoured their growth. The readiness of the members of L.A. 300 of the Order in America to organize and to finance an international federation of their own trade was the key factor in enabling the Knights to spread to Europe.[1] Yet although the aims of the window glass workers were largely limited to the interests of their own craft, enough was known of the movement in America—notably through the medium of the West Bromwich *Labour Tribune*, and probably also through the return visits of British emigrants to America—to enable the glass workers' preceptory in Birmingham to serve as the starting point for the recruitment of unorganized workers without distinction of trade. Thus idealism combined with 'job-consciousness' from America to provide for Britain the first wave in the mounting tide of 'new unionism'. The new recruits were not taken into the glass workers' Assembly but were marshalled in fresh Assemblies which catered for members of all trades and had a suitably low level of dues.

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[1] Shaw Maxwell to Powderly, 27 February 1890 (KLP). Shaw Maxwell became the first Secretary of the Independent Labour Party in 1893–4. The Glasgow and District Brewery, etc. Workers Union, founded at this time, considered but rejected the idea of joining the Knights (Webb Coll. E.-A. 42.346).

[2] *Halfpenny Weekly*, 14 December 1889; *Journal of the Knights of Labor*, 27 February 1890.

[3] *Journal of United Labor*, 18 April 1889. The application for a charter was forwarded by way of Smethwick.

[4] Stewart to Hayes, 14 August 1891 (KLP).

[5] Stewart to Hayes, 20 August and 21 October 1891 (KLP); see also *Journal of the Knights of Labor*, 30 July 1891.

[6] *Labour Electoral Congress Report* (1891), p. 37; 'Report of Chief Registrar of Friendly Societies', *Parliamentary Papers*, 1896, LXXVIII, 566.

[7] Dean to Powderly, 8 February and 9 April 1893, and R. Hill to Powderly, 23 June and 30 October 1893 (KLP): Powderly seems not to have replied to these letters.

[8] 'Report of Chief Registrar of Friendly Societies', *Parliamentary Papers*, 1902, XCVI, 378.

The exceptional strength of the Assemblies in the Midlands must have been due to the special character of industrial society in the area, where the existence of many small trades operated by small firms encouraged interest in arbitration of disputes and trades federation for mutual support. As the Midland Knights grew, it became apparent that many of the small craft unions of the area were joining them *en bloc*, and this might have been expected to be an element of strength in the event of a depression, for we know that the 'new unions' which survived the 1890's did so by retreating into a sheltered position in control of particular trades or even particular factories.[2] But the Knights, unlike the Gas workers and the two Dockers unions, were not primarily based on one particular industry; and the window glass trade, which had been their original source of strength, was never well organized and was in any case in decline owing to foreign competition. Further, the semi-secrecy of the Order and its overseas origin threw doubts on its legality and endangered its funds—two factors which gravely weakened it in competition with other unions. Consequently, the only elements of the movement which survived were those which, following the lead of McGhee and Sanders, jettisoned the all-embracing ideal of the Order and set up as national trade societies, thereby becoming indistinguishable from the other 'new unions'.

Although the Order failed in Britain and Ireland, it contributed in several ways to build up interest in unionism, especially among the unskilled. In the case of the stove grate workers and the provincial dockers, there was, as we have seen, a direct organizational link. But many of the recruits of the other 'new unions' must have been stirred to activity by hearing of the successes of the Knights both in England and in America, particularly in 1886–7, when the Order reached the peak of its American success with some 700,000 members, and induced even the sceptical Engels, then living in London, to speak of it as 'a real power'.[3] There were many British workers who had worked in America for a time, and had come into contact with the Order there: one of the more notable was William Johnson, who had worked in the textile mills of Atlanta, Georgia, and who after returning to Britain became in 1890 the Secretary of the National Union of Shop Assistants and a pioneer of independent labour politics in Manchester.[1] But we may conclude that the most important influence of the Knights on British trade unionism must have been afforded by the example of their numerous Assemblies in this country. If they provided the workers and their leaders with more lessons of what to avoid than of what to imitate, this should not lead us to ignore the story of the Order's growth and decline as an interesting episode in British union history.

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[1] For the development of the Order in Belgium, which closely paralleled that in Britain, see Delwarte's account in *Proceedings of the G.A. K. of L.* (1888), pp. 77–81.

[2] E. J. Hobsbawm, 'General Labour Unions in Britain, 1884–1914', *Economic History Review*, 2nd ser. I (1949), 123–42.

[3] Engels to Sorge, 29 November 1886, quoted in K. Marx and F. Engels, *Letters to Americans 1848–1895* (New York, 1953), p. 163.

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[1] Biography of W. Johnson in *Labour Annual* (Manchester, 1895), p. 177.

APPENDIX

KNOWN ASSEMBLIES OF THE KNIGHTS OF LABOR IN BRITAIN AND IRELAND[1]

Charter[2] no.	Location	Date of foundation	Membership figures	Other remarks
		I. DISTRICT ASSEMBLIES		
208	Handsworth, Birmingham	July 1887	2,382 in Jan. 1888; ? 400 in July 1891, only 4 locals left by 1893	
248	Cradley Heath, Staffs.	1888	Claimed 3,000, 1890–1; ? 500 in July 1891	Reorganized (with Sheffield) as British National Assembly, Feb. 1892; 434 members at end of 1892; died 1894
?	Sheffield and Rotherham	? 1889		
?	Scotland (Glasgow)	? July 1889	Claimed 3,000 members, Dec. 1889	Twelve Assemblies in Feb. 1890
		II. LOCAL ASSEMBLIES		
2,886	Cardiff	Sept. 1883		Ironworkers and miners
?	Bootle, Lancs.	? 1884		Dockers only: founded by J. Sexton. Died 1885
3,504	Sunderland, with 'preceptories' at Spon Lane (Birmingham), St Helens, and Plank Lane (Lancs.)	Nov. 1884	750 in 1885, later dropped to about 300	Window glass workers only. Called 'Alpha Assembly'

[1] As there were fifty 'branches' of the Knights early in 1889, i.e. before the expansion of the movement into Yorkshire, Scotland and Ireland, it will be seen that the list here is by no means comprehensive.

[2] Charters of Local Assemblies were numbered in chronological order up to 11,000, but when this figure was reached in 1887 the numbers of defunct Locals were re-allocated, and thereafter the number gives no guide as to date of foundation.

Appendix (*cont.*)

Charter no.	Location	Date of foundation	Membership figures	Other remarks
7,952	West Bromwich	June 1886		The first 'mixed' Assembly in England. Called 'Lizzie Lucas'
9,086	Cradley Heath, Staffs.	Nov. 1886	?	In existence 1888
9,608	Handsworth			In existence 1888
9,770	Winson Green, Birmingham	Feb. 1887	About 40 at end of 1889	Died July 1890
10,102	?	?	?	
10,227	Smethwick, Staffs	May 1887	300 in Mar. 1888	
395	Derby	?	?	In existence 1889
443	Bootle, Lancs.	May 1889	250 by Aug. 1889	Mostly stevedores at first; founded 'preceptories' for other workers in Liverpool, 1890
454	Walsall	? 1888	?	In existence 1889 and and 1890
518	Wolverhampton	?	?	In existence July 1888
583	Birmingham	?	?	In existence March 1889
584	Birmingham	?	?	In existence 1890
647	Liverpool	?	?	In existence 1888
712	Smethwick	?	?	In existence July 1888
731	Cradley Heath	?	?	In existence 1890
1,001	Sedgley, Staffs	?	?	In existence 1890
1,266[1]	Masborough (Rotherham)	June 1888	42 in June 1889: 450 in Jan. 1890	In existence 1891. Called 'Live & Let Live' Assembly
1,566	Belfast	Early 1889	35 at start	Called 'Erin's First'
1,601	Londonderry	Aug. 1889	100 in Aug. 1891	Called 'Alpha' Assembly
1,743	Bloxwich (Walsall)	Dec. 1889		Called 'Good Intent'
?	Doncaster	1890		'Mixed'
?	Ardrossan, Ayrshire	1890	80 at start	
?	Jarrow, Durham	1889	82 in 1891, gradually declining thereafter	Sick benefit society only by 1891; died 1901

[1] There were apparently at least ten Locals in the Sheffield and Rotherham area at one time, five of them in Rotherham. But with the exception of L.A. 1,266, no details are known.

SHORT ARTICLES

THE ASSIZE OF BREAD[1]

By ALAN S. C. ROSS

THE principle of the English institution known as the Assize of Bread is a very simple one: there were different kinds of bread; the price per loaf was fixed for each kind of bread; the price of corn fluctuated;[2] hence the weights of the different loaves varied, so that, the higher the price of corn, the smaller the weight of a loaf of a given kind and a given price.

One of the clearest and most succinct accounts of the Assize of Bread is to be found in Studer (*Introduction* to vol. II) and I cannot do better than summarize it here.[3]

The immediate object of the Assize was to fix the size of the loaf of bread. Whatever might be the fluctuations of the corn-market, loaves were sold at a farthing, or a half-penny or a penny; the size of these loaves would therefore vary according to the price of corn, becoming smaller as the price of corn rose and larger as it fell.

The price of corn was fixed in every part of the country by the local magistrates—apparently after the Feast of St Michael—according to a more or less elaborate process.[4] When fixed, it was proclaimed as the statute price of corn for the coming year and utilized as the basis for calculating the weight of the various kinds of loaves. The Assize could be adjusted in the course of the year, if there was an appreciable change in the price of corn.[5]

The profit to which the baker was entitled, as well as the allowance he could claim for expenses, were most minutely defined by law; he was also entitled to the bran and to the 'advantage bread': out of every quarter of wheat, he was supposed to sell 418 lb. of bread, and whatever he baked above that amount was 'advantage bread' for himself.[1]

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[1] Abbreviations: Cunningham = W. Cunningham, *The Growth of English Industry and Commerce*, vol. I (5th ed. Cambridge, 1922); *Liber Albus* = *Lib. Albus*, ed. H. T. Riley in *Munimenta Gildhallæ Londoniensis* (1859); Rogers = J. E. T. Rogers, *A History of Agriculture and Prices in England* (Oxford, 1866); Salter = H. E. Salter, *Medieval Archives of the University of Oxford* (Oxford, 1920–1); *Statutes* = *Statutes of the Realm* (1810–28); Studer = P. Studer, *The Oak Book of Southampton of* c. *A.D. 1300* (Southampton, 1910–1); Twiss = T. Twiss, *The Black Book of the Admiralty* (1871–6); Webb = Sidney and Beatrice Webb, The Assize of Bread, *Economic Journal*, XIV (1904), 196–218. My thanks are due to my colleagues Professor H. A. Cronne, Professor A. D. Hargreaves, Mr R. Hilton, and Professor C. A. Rogers for much kind advice in the context of the present article. Recently, Professor Harold W. Bailey (of Queens' College, Cambridge) and I investigated the etymology of the word *wastel* (our joint article thereon is at press for *English and Germanic Studies*, vol. VI). This investigation has not only led me to become cognisant of the dominant role played by wastel-bread in the Assize, but also to speculate upon the nature of this latter institution as a whole.

[2] The fluctuations were immense; in a good year the price might be as low as 12*d.* per qr. whereas in 1315, it reached 28*s.* 6*d.* per qr. (Rogers, I, 197).

[3] II, xxi *et seq.* The Webbs' article deals, in the main, with the history of the Assize in the eighteenth century.

[4] Cf. *Liber Albus*, pp. 349–50, where there is an interesting account of the method of fixing the Assize in the City of London. See, further, the description given in the Romney Custumary (J. Lyon, *The History of the Town and Port of Dover* (Dover, 1813–14), II, 337–8).

[5] A complete record for the period extending from 12 October 1482 to September 1483 has been preserved among the archives of Southampton and, from this document we see that, in less than twelve months, the Assize was altered no less than six times. At Bristol, during the year 1801, the Assize went on being formally set each week by the Mayor (Webb, p. 214).

From the outset, various kinds of bread were baked, and, though later legislation generally brought them under three headings, namely, 'wastel bread', 'bread of whole wheat' and 'bread treet' (afterwards known as 'white', 'wheaten' and 'household', respectively), yet the Statute[2] mentions no less than seven kinds of bread and the Table of the Oak Book of Southampton, which is based on the Statute and was probably drawn up in the reign of Edward II,[3] provides for nine different kinds.[4] These were:

(1) Wastel Bread (*wastellus*); in the Southampton Records of 1482, 1559, etc. it is always referred to as *panis albus*.

(2) Cocket Bread (also called *panis levatus*). It appears that two kinds of Cocket Bread were baked, namely (2*a*) Small Cocket (*cocket minor*), afterwards called 'white bread',[5] of the same quality of flour as Wastel, and (2*b*) Large Cocket (*cocket major*), made of corn of a lower price. In the Domesday of Ipswich, they are respectively called *primer coket* and *secund coket*.

(3) *Simnel Bread* (*symenellus*, *panis de siminello*, sometimes also called *panis artocopi*), a kind of cake baked twice.

(4) French Bread (*panis franciscus*, *pain fraunceis*, also called *pouf* or *panis levis*); this is not mentioned in the Statute, nor in the Domesday of Ipswich (unless the *peyn fyngete* of this text means the same thing) but the term occurs commonly on the Continent as early as the thirteenth century, and, in England, from the reign of Edward I onwards. French Bread was really a kind of milk bread, for the preparation of which the finest wheaten flour was used, whilst milk, butter and eggs were among the ingredients entering into its composition. According to the Oak Book, it was the most expensive kind of bread made at Southampton, but in other parts of the country it does not seem to have been of the same excellence.[6]

(5) Ranger Bread (*panis rangerus*) is also omitted from the Statute and it seems that references to it are of extreme rarity; but, to judge from its price, it may be inferred that it was made of ordinary wheaten flour and that it differed from 'whole wheat bread' in so far as the flour was first passed through a sieve (*ranger*).

(6) Bread of Whole Wheat (*panis integer*, *peyn enter de frument*, sometimes identified with *turta*—though the latter probably denoted a much coarser kind of bread), came to be known as 'wheaten bread' and was the kind in common use.

(7) Bread Treet (*panis de treyt*, etc. also *panis bissus*) was a coarse brown bread made of unbolted meal, afterwards known as 'household bread'.

(8) Bread of Common Wheat (*panis de omni blado*, *panis de quolibet genere bladi*, *peyn de tutz manere de ble*) was the coarsest kind of bread baked at Southampton. Seeing that it was only half the price of Large Cocket, it must chiefly have been made of refuse stuff.

The Law not only fixed the exact weight of each kind of bread, but it also regulated the smallest detail of the trade. Bakers could only make certain kinds of bread, and these in fixed proportions. Thus, in the Domesday of Ipswich, bakers are divided into four different groups. Bakers of the first group were allowed to bake Wastel, Small Cocket, and Bread Treet; those of the second group, Simnel Bread and Bread Treet; those of the third group, Bread of Whole Wheat and Large Cocket; those of the fourth group, only Bread of Whole Wheat and Bread of Common Wheat.[1]

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[1] The 'Baker's Gain' was frequently altered as time went on—both in respect of the number of pounds of bread per quarter of wheat and of expenses (see Webb, *passim*).

[2] P. 336.

[3] Studer, II, xxiv.

[4] P. 338.

[5] It was, however, more usual to apply the term 'white bread' (*panis albus*) to Wastel Bread.

[6] In London, for instance, it was sold at the same rate as Wastel (*Liber Albus*, I, 353).

At certain intervals, generally about once a month, and not less than four times a year, the bailiffs, or other officers specially appointed for the purpose, had to ascertain whether the Assize was being properly kept. All infractions were severely punished, offenders being fined, exposed upon the pillory, thrust into prison, or suspended from their occupation.

In order to understand the Table contained in the Oak Book,[2] it must be remembered that, during the reigns of the first Anglo-Norman kings of England, the pound in money was precisely the pound-weight of silver, and the penny in money was the pennyweight of silver (the only coin then current in the Kingdom). At this period, weights were therefore usually expressed in pounds, shillings and pence; but they were estimated by the 'Saxon' or 'Tower' pound, which was less than the pound troy in the proportion of 15 to 16. For instance, when the quarter of wheat was sold for 12*d.*, the farthing loaf of Wastel was to weigh £6. 16*s.*, which would correspond to 6·8 lb. troy (=5·6 lb avoirdupois). Under the same conditions the farthing loaf of Small Cocket would weigh two shillings more than the farthing loaf of Wastel, i.e. £6. 18*s.* or 6·9 lb. troy (=5·68435 lb. avoirdupois). The scribe of the Oak Book has worked out, not without making several blunders, the weight of the farthing, halfpenny and penny loaf of each of the kinds of bread for prices of corn from 12*d.* to 12*s.*[3]

The basic concept of the Assize of Bread is certainly ancient. It is not, however, to be traced to Anglo-Saxon Law;[4] rather are its origins to be sought in quite another direction and, in this latter connexion, in his Appendix on the Assize of Bread, Cunningham (p. 567) calls attention to a passage in the Frankfurt Capitulare (A.D. 794) which regulates the prices of corn and food.[5] I divide our early evidences for the English Assize of Bread into three Categories, A, B and C, for reasons which will appear below. Cunningham (pp. 567–9) prints a regulation (our sole evidence for Category A), then the complete rules for an Assize (these belong to my Category B), both from B.M. Add. MS. 14252; the first (fol. 118v) appears to be in a hand of *c.* 1200, while the second (fol. 85v) is apparently of the time of Henry II. I quote from these documents.[6]

CATEGORY A

Add. 14252 (1)

Of the Constitution and of the Weighing of Bread

On the Monday after St. Luke's [Day], it was decreed at the Guildhall that, when wheat shall be sold for 40 [pence] and the other [grain][7] for 38*d.*, then the halfpenny Wastel [loaf] shall weigh 60*s*. and the halfpenny [loaf] of Bread Treet, nine marks—

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[1] Twiss, II, 174. [2] P. 337. [3] P. 337.

[4] As suggested by Studer, II, xxi; Webb, p. 196.

[5] A. Boretius, *Capitularia Regum Francorum* (*Monumenta Germaniae historica: Legum Sectio II* (Hanover, 1897)), I, 74. Early French Law has an institution similar to the English Assize of Bread; cf. 'Reglement qui fixe le Prix du Pain selon les differents Prix du Bled', *Ordonnances des Roys de France de la troisième Race*, V (Paris, 1736), 499–502—an ordinance of Charles V (of 1372).

[6] Hereinafter referred to by me as 'Add. 14252 (1)' and 'Add. 14252 (2)'. Following the invariable practice of *The Economic History Review*, I translate all foreign-language documents.

[7] It is not clear what this 'other grain' is; cf. Cunningham, p. 569.

and the regulation then goes on to another matter, *De conditione operariorum.*

CATEGORY B

Add. 14252 (2)

This is the Assize for making and selling Bread which has been proved by the Bakers of [our] Lord King Henry II. Namely: that the Baker can sell as is written below; and [that], in respect of every quarter of wheat—two loaves having been taken away for the 'baking fee' (*ad fornagium*)[1]—he can [have] a profit of threepence and the bran and [also]: three-halfpence for four servants, a farthing for two lads, a halfpenny for salt, a halfpenny for yeast, threepence for wood, a farthing for the candle (*in candela*), a halfpenny for the bolting-cloth. When the Quarter of Wheat sells for six shillings, then the loaf must be good and white (*debet panis esse bonus et albus*) and weigh sixteen shillings of twenty ores [each] and the loaf of Common Wheat (*panis de toto blado*)[2] must be good—in that nothing may be subtracted from it—and must weigh twenty-four shillings of twenty ores [each]. When the Quarter of Wheat sells for five shillings and six pence, then it [*sc*. the Wastel loaf] must weigh 20*s*. and the other loaf,[3] 28*s*.—and so on, by sixpences down to 1*s*. 6*d*. per qr.[4]

This second citation—Add. 14252 (2)—is found again, with little variation, printed at pp. 480–1 of vol. II of H. R. Luard's *Matthæi Parisiensis Monachi Sancti Albani Chronica Majora* (1872–83). This is not the place to attempt a discussion of the history and textual history of the *Chronica Majora*, and it will suffice to say that this passage is definitely stated by Luard[5] to be one of Matthew Paris's[6] own additions.[7] But, in the *Chronica Majora*, the passage is attributed to the reign of John and the year 1202: 'In the same year, the King had it generally proclaimed that the legal Assize of Bread must be observed without violation under penalty of the Pillory....'

CATEGORY C

The Statute *Assisa Panis et Cervisie*, usually assigned to 51 Hen. III (i.e. 1266), is critically edited at *Statutes*, I, 199–200 (and there regarded as of *Temp. Incert.*). The main source of this edition is B.M. MS. Cotton Claudius D. II, fol. 252v and the collated sources[8] are:

(1) 'An Exemplification, at the Request of the Bakers of Coventre, of the

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[1] See J. A. H. Murray *et al. New English Dictionary* (Oxford, 1884–1933) s.v. *Furnage*; W. v. Wartburg, *Französisches etymologisches Wörterbuch*, III (Leipzig, 1934), 903.

[2] P. 333.

[3] I.e. the loaf of Common Wheat.

[4] See Table 1.

[5] II, xliii.

[6] Matthew Paris was born about the year 1200 and died in 1259 (F. Madden, *Matthæi Parisiensis, Monachi Sancti Albani, Historia Anglorum* (1866–9), III; xii, xxi). For some account of the difficult problems mentioned above, see the Introductions to the various volumes of the works of Madden and Luard just referred to.

[7] Mr R. Vaughan (Corpus Christi College, Cambridge) has been so kind as to confirm that this is indeed one of Matthew Paris's own additions and to collate Luard's text against the Original (Cambridge, Corpus Christi College, MS. 16, fol. 21v). Mr Vaughan says further that, so far as he is aware, the passage under discussion here is extant in no other of the manuscripts.

[8] I give the abbreviations for the sources which I use hereinafter in square brackets [ ].

Ordinances of the Assize of Bread and Ale', dated 22 March 1379, on Public Record Office, Patent Roll, 2 Richard II—Part II, Membrane 20[1] [*Rot. Pat.*].

(2) Two texts from Guildhall, *Liber Horn*,[2] one in French (fol. 121) [*Lib. H. Fr.*], the other in Latin (fol. 301 v) [*Lib. H. Lat.*].

(3) A text at *Magna Charta cum Statutis quæ Antiqua vocantur...apud Richardum Tottelum* (1556), fols. 81 v–83 r [*Tottell*].

(4) The 'Printed Copies' [*PC*], that is, the early printed editions of the Statutes as listed *Statutes*, I, xxi–xxiv.

I translate from the text printed *Statutes*, I, 199–200 and collation.

The Assize of Bread and Ale

[The King to all to whom, etc., greeting. We have examined certain ordinances of the Assize of Bread and Ale, of the composition of Money, and of Measures, made in the times of Our progenitors, sometime Kings of England; in these words:][3]

When the Quarter of Wheat is sold for 12*d*., then the Farthing Wastel Loaf shall weigh six pounds and sixteen shillings; the Cocket Loaf of the same corn and the same fineness of sieving shall weigh two shillings more than the Wastel. [The Cocket Loaf] of corn of less price shall weigh five shillings more than the Wastel. And the Simnel Loaf shall weigh two shillings less than the Wastel because it has been baked twice. The Farthing whole-loaf of wheat[4] shall weigh a Cocket and a half. And the Treet Loaf shall weigh two Wastels. And the Loaf *de omni blado*[5] shall weigh two Cockets.[6] When the Quarter of Wheat is sold for 18*d*., then the Farthing Wastel Loaf—white and well-baked— shall weigh four pounds, ten shillings and eightpence. When [the Quarter of Wheat is sold] for two shillings, then it [*sc.* the Farthing Wastel Loaf] shall weigh 68*s*.—

and so on, by sixpences, to twelve shillings.[7]

And it is to be known that, in respect of every quarter of wheat, the Baker can, as has been proved by the Bakers of [our] Lord the King, [have] a profit of fourpence and the bran and two loaves for the 'baking fee'[8] (*ad furnagium*);[9] [also]: a penny-halfpenny for three servants, a halfpenny for two lads, a halfpenny for salt, a halfpenny for yeast, a farthing for the candle (*in candela*), twopence[10] for wood; for the bolting-cloth [he is] to have a penny-halfpenny.[11]

The Statute is also given in 'Fleta',[12] though, as Daines Barrington, *Observations on the Statutes* (1766), p. 29, observes, 'The author of Fleta hath made these regulations part of his work, without taking notice that they arise from any authority of the legislature'.

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[1] Catalogued at *Calendar of the Patent Rolls preserved in the Public Record Office: Richard II. A.D. 1377–1381* (1895), p. 335.

[2] Cf. P. E. Jones and R. Smith, *A Guide to the Records in the Corporation of London Records Office and the Guildhall Library Muniment Room* (1951), p. 22.

[3] [...] from *Rot. Pat.*

[4] 'the Loaf of Whole Wheat' *PC*; 'of Whole Wheat at a Farthing' *Lib. H. Fr.*

[5] *communi* blado *Rot. Pat.*; *PC*; touz bleds *Lib. H. Fr.*

[6] majores *PC*.

[7] The original calculation clearly stopped at twelve shillings, for it finishes at this point in MS. Cotton Claudius D. II, Rot. Pat. and Lib. H. Fr. (also in 'Fleta' and the Oak Book (p. 337)); it is, however, carried on to twenty shillings in Lib. H. Lat, Tottell and at J. Cay, *Statutes at Large*, vol. I (1758), 20.

[8] 'For baking fee, the price of twopence' *Lib. H. Fr.*

[9] See p. 335.

[10] 'three-farthings' *Rot. Pat.*

[11] 'a halfpenny' *Rot. Pat.*; *Lib. H.*

[12] The second volume of the new edition of 'Fleta' by H. G. Richardson and G. O. Sayles has now appeared for the Selden Society (vol. LXXII). Professor Sayles (Aberdeen) was so kind as to send me the proofs of the relevant section (II, 117–18). He also tells me that it is safe to regard this treatise as having been written in—or very shortly after—1298 (the dating will be discussed in the forthcoming, first volume of this edition).

The Rules and Table of the Oak Book, which were probably compiled in 1329,[1] are, very evidently, directly based upon the Statute. So, too, are several early documents on the Assize of Bread printed by Salter (pp. 131 *et seq.*).

The Assize of Bread, as laid down in the Statute, remained in force until 1709 when it was repealed by 8 Anne 19; other regulations were then, and later,

Table 1. *Weight of Farthing-Wastel-Loaf*

	Category B	Category C						
Price of corn per qr.	Correct and Add. 14252 (2)	Correct	MS. Cotton Claudius D II	'Fleta'	Oak Book	Lib. Horn	Tottell	PC
s. d.	*£ s. d.*	*£ s. d.*	*£ s. d.*	*£ s. d.*	*£ s. d.*	*£ s. d.*	*£ s. d.*	*£ s. d.*
1 0	—	6 16 0	6 16 0					
1 6	3 6 0*	4 10 8	4 10 8		—			
2 0	3 0 0	3 8 0	3 8 0		3 10 6			
2 6	2 14 0	2 14 4¾	2 13 4¾†	2 14 4¾	2 14 4¾	2 14 4¾		2 14 4¾
3 0	2 8 0	2 5 4	2 8 0				2 5 4	
3 6	2 2 0	1 18 10¼	2 2 0				1 18 10½	
4 0	1 16 0	1 14 0	1 16 0				1 14 0	
4 6	1 10 0‡	1 10 2¾	1 10 0				1 10 2¼	
5 0	1 4 0	1 7 2½	1 7 2½					
5 6	1 0 0	1 4 8¾	1 4 8¼					
6 0	16 0	1 2 8	1 2 8¼§	1 1 8¼	1 2 8	1 2 8½	1 2 8	
6 6	—	1 0 11	1 0 11		—			
7 0	—	19 5¼	19 1	19 5	19 5	19 5	19 5¼	
7 6	—	18 1½	18 0½	18 1½	18 1½	18 3½	18 1½	
8 0	—	17 0	17 0					
8 6	—	16 0	16 0					
9 0	—	15 1¼	15 0¼		15 0	15 0		
9 6	—	14 3¾	14 4½	14 4¾	14 4¾	14 4¼	14 4¼	
10 0	—	13 7¼	13 8¼	13 7¼	13 7¼	13 7¼	13 7½	
10 6	—	12 11½	12 11	12 11¼	12 11¼		12 11¼	
11 0	—	12 4¼	12 4¼	12 4	12 4	12 4		
11 6	—	11 10	11 10		11 11	11 9		
12 0	—	11 4	11 4					
12 6	—	10 10½	—	—	—	11 0	10 10½	
13 0	—	10 5½	—	—	—	10 3½	10 5½	10 1½
13 6	—	10 1	—	—	—	10 1½	10 0¾	
14 0	—	9 8½	—	—	—	9 8	9 4¼	9 6
14 6	—	9 4½	—	—	—	9 2¾		
15 0	—	9 0¾	—	—	—	9 0¾	9 1	
15 6	—	8 9¼	—	—	—	8 8	8 9½	8 9
16 0	—	8 6	—	—	—	8 6		
16 6	—	8 3	—	—	—	8 3	8 2¾	
17 0	—	8 0	—	—	—	8 0		
17 6	—	7 9¼	—	—	—	7 8½	7 9¼	7 10½
18 0	—	7 6¾	—	—	—	7 6¼	7 6¾	
18 6	—	7 4¼	—	—	—	7 4¼		7 4½
19 0	—	7 2	—	—	—	6 11¼	7 2	7 2¼
19 6	—	6 11¾	—	—	—	6 9	6 11½	6 10
20 0	—	6 9½	—	—	—	6 8	6 9¾	6 3

* *Chronica Majora: £3. 17s. 0d.* † *Rot. Pat.: £2. 14s. 4¾d.* ‡ *Chronica Majora: £1. 12s. 0d.*
§ *Rot. Pat.: £1. 2s. 8½d.*

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[1] Studer, II, 28–37, 28 note 1.

substituted. The Assize of Bread was finally abolished for London by the Bread Act of 1822 (3 George IV, *c.* 106), which, in 1836, was followed by a similar act (6 and 7 William IV, *c.* 37) for the rest of the country.[1]

Table 2

		6*s.*						11*s.* 6*d.*					
		Correct			Oak Book			Correct			Oak Book		
		£	*s.*	*d.*	£	*s.*	*d.*	£	*s.*	*d.*	£	*s.*	*d.*
1. Wastel	¼*d.*	1	2	8	1	2	8		11	10		11	11
	½*d.*	2	5	4	2	5	4	1	3	7¾	1	3	8
	1*d.*	4	10	8	4	10	8	2	7	3½	2	7	4
2*a* Small Cocket	¼*d.*	1	4	8	1	4	8		13	10		13	10
	½*d.*	2	9	4	2	9	4	1	7	7¾	1	7	8
	1*d.*	4	18	8	4	18	8	2	15	3½	2	15	4
2*b* Large Cocket	¼*d.*	1	7	8	1	7	8		16	10		16	10
	½*d.*	2	15	4	2	15	4	1	13	7¾	1	14	8
	1*d.*	5	10	8	5	10	8	3	7	3½	3	5	4
3. Simnel Bread	¼*d.*	1	0	8	1	0	8		9	10		9	10
	½*d.*	2	1	4	2	1	4		19	7¾		19	8
	1*d.*	4	2	8	4	2	8	1	19	3½	1	19	4
4. French Bread	¼*d.*		18	8	As No. 4				7	10	As No. 4		
	½*d.*	1	17	4	As No. 4				15	7¾	As No. 4		
	1*d.*	3	14	8	As No. 4			1	11	3½	As No. 4		
5. Ranger Bread	¼*d.*	1	14	0	1	11	4½		17	8¾		17	9
	½*d.*	3	8	0	3	2	9	1	15	5¾	1	15	6
	1*d.*	6	16	0	6	5	6	3	10	11½	3	11	0
6. Bread of Whole Wheat	¼*d.*	2	1	6	1	18	10½	1	5	2¾	1	5	3
	½*d.*	4	3	0	3	18	9	2	10	5¾	2	10	6
	1*d.*	8	6	0	7	15	6	5	0	11½	5	1	0
7. Bread Treet	¼*d.*	2	5	4	2	1	10	1	3	7¾	1	3	8
	½*d.*	4	10	8	4	3	8	2	7	3½	2	7	4
	1*d.*	9	1	4	8	7	4	4	14	7¼	4	14	8
8. Bread of Common Wheat	¼*d.*	2	15	4	2	11	10	1	13	7¾	1	13	8
	½*d.*	5	10	8	5	3	8	3	7	3½	3	7	4*
	1*d.*	11	1	4	10	7	4	6	14	7¼	6	14	8

* Altered from £2. 17*s.* 4*d.* in a later hand.

At this point in the discussion it will be convenient to introduce two Tables. Table 1 gives the weights of farthing-wastel for different prices of corn, according to the sources of Categories B and C that I have considered.[2] As Table 2, I print some specimen columns of Studer's form of the Oak Book Table.[3]

It remains to consider the actual numerical data of the Assize of Bread and its early congeners. Four points are for discussion: (1) the relation of the weights of other breads to that of the yard-stick, the farthing wastel; (2) the relation between the price of corn and the weight of the yard-stick, the farthing wastel; (3) the Baker's Gain; (4) the interrelation of our three Categories, A, B and C.

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[1] J. H. Beale, *A Bibliography of early English Law Books* (Cambridge, Mass., 1926), T. 252–8, lists some early printed books on the Assize of Bread.

[2] Add. 14252 (2) is our main text for Category B; I note the cases in which the passage in the *Chronica majora* differs. For Category C I have used MS. Cotton Claudius D. II as the main text as far as 12*s.*, thereafter the Latin text at Liber Horn fol. 301 v and I have noted the cases in which the other sources differ. The entries of the columns marked 'Correct' are those calculated (to the nearest farthing) on the principles set out below (p. 340).

[3] I leave the manuscript errors uncorrected (thus not taking account of Studer's partial corrections—cf. p. 339), but, as in Table 1, I insert 'Correct' columns (cf. p. 339).

(1) Putting the matter in a more convenient and modern form, we may say that, if w is the weight (in shillings) of the farthing wastel for a given price of corn, then the weight of any other kind of farthing-loaf for that price of corn will be $Aw+B$, where A and B[1] are constants dependent upon the kind of loaf. The Introduction to the Table of the Oak Book[2] enables us to evaluate these constants:

Table 3

	A	*B*
[1 Wastel]	1	0
[2*a* Small Cocket] 'The Cocket loaf of the same corn and of the same fineness of sieving should weigh 2*s.* more than the Wastel'.	1	2
(2*b* Large Cocket] 'The greater Cocket should weigh 5*s.* more than the Wastel'.	1	5
[3 Simnel Bread] 'The Simnel should weigh 2*s.* less than the Wastel'.	1	−2
[4 French Bread] 'The French loaf should weigh 2*s.* less than the Simnel'.	1	−4
[5 Ranger Bread] 'The Ranger loaf should weigh a Wastel and a half'.	1·5	0
[6 Bread of Whole Wheat] 'The "whole" loaf should weigh a Cocket (of the greater weight) and a half'.	1·5	7·5
[7 Bread Treet] 'The Treet loaf should weigh two Wastels'.	2	0
[8 Bread of Common Wheat] 'A loaf *de omni blado*[3] should weigh two Cockets (of the greater weight)'.	2	10

The compiler of the Oak Book Table has evidently endeavoured to put these computational rules into practice, except in the case of No. 4 'French Bread', for which, throughout, he enters the same weight as that of the corresponding No. 3 'Simnel Bread'.[4] However, his arithmetic has, only too clearly, not been equal to this heavy task. Studer emends a few of his errors but, proportionately, not very many.

The Table of the Oak Book enables us to interpret the Statute of 1266—or, at the least, tells us how it was interpreted in 1329. I may thus rewrite the relevant section of my translation of the Statute as follows.

> The Farthing Small Cocket Loaf (No. 2*a*)[5] of the same corn and the same fineness of sieving shall weigh two shillings more than the Farthing Wastel Loaf (No. 1). The Farthing Cocket Loaf of corn of less price [i.e. the Farthing Large Cocket Loaf (No. 2*b*)] shall weigh five shillings more than the Farthing Wastel Loaf (No. 1). And the Farthing Simnel Loaf (No. 3) shall weigh two shillings less than the Farthing Wastel Loaf (No. 1). The Farthing Loaf of Whole Wheat[6] (No. 6) shall weigh a Large Cocket Loaf (No. 2*b*) and a half. And the Farthing Treet Loaf (No. 7) shall weigh two Farthing Wastel Loaves (No. 1). And the Farthing Loaf *de omni blado* (No. 8) shall weigh two Farthing Large Cocket Loaves (No. 2*b*).

Turning next to the document for Category B, Add. 14252 (2), we first observe that the weights given here are, just as in the Statute, the weights of the Farthing Loaves. A sufficient proof of this statement is afforded by the agreement between Add. MS. 14252 (2) and the Statute in respect of the four price-weight relations 3*s.* 0*d.*: £2. 8*s.* 0*d.*, 3*s.* 6*d.*: £2. 2*s.* 0*d.*, 4*s.* 0*d.*: £1. 16*s.* 0*d.*, 4*s.* 6*d.*: £1. 10*s.* 0*d.*[1] But the relationship between the prices of *panis albus* and *panis de toto blado* in Add. 14252 (2) is fundamentally different from the relations I have just discussed. *Panis albus* is certainly Wastel,[2] *panis de toto blado* can only be No. 6 Bread of Whole Wheat.[3] Here it is—to put the matter again in modern terms—as if the compiler, having in mind the formula $Aw+B$, kept $A=1$ and let B increase discontinuously as the price of corn decreased. Thus:

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[1] In shillings.

[2] Studer, II, 28, 30.

[3] See p. 333.

[4] Cf. the remark in Registrum A of the Statutes of the University of Oxford (fol. 98 v): 'And þe ferþyng frensh lof shall weye as moche as þe symnel' (cited Salter, p. 134).

[5] The numbers in brackets ( ) are those of p. 333.

[6] Taking the readings of Lib. H. Fr. and PC.

Table 4

Price of corn per qr.	B[4]
6*s.*, 5*s.* 6*d.*, 5*s.*	8
4*s.* 6*d.*, 4*s.*	10
3*s.* 6*d.*	12
3*s.*, 2*s.* 6*d.*	18
2*s.*	20
1*s.* 6*d.*	22[5]

(2) Despite the numerous arithmetical errors of our sources, it is not at all difficult to ascertain, by inspection, what is the arithmetical relation between the price per quarter of corn (p) and the weight of the unit, the farthing-wastel-loaf (w). Expressing both w and p in shillings, we have clearly:

Category C: $wp=136$.
Category B: $w=8(8-p)$ for $p=5s.$, $p=5s.\ 6d.$, $p=6s.$
$w=12(7-p)$ for $p=1s.\ 6d.$[6] to $p=5s.$ inclusive.

(3) In Categories B and C, the Baker's Gain is clearly different.

(4) The price-weight relationships of Categories B ($w=12(7-p)$, or, in the event, $w=8(8-p)$) and C ($wp=136$) are, of course, fundamentally different.[7] Nevertheless, there is certainly some interconnexion between these two Categories, for three of the incorrect values of the Statute[8] agree with the corresponding values of Category B; namely, the values for 3*s.*, 3*s.* 6*d.* and 4*s.*—48*s.*, 42*s.* and 36*s.* in Category B and the Statute, but, correctly, 45*s.* 4*d.*, 38*s.* 10½*d.* and 34*s.*, respectively. We are, unfortunately, singularly ill-informed as to the nature of the arithmetical thinking of the English non-mathematician of this period (and, indeed, likely to remain so). It is, however, possible to understand the genesis of the priceweight relationships of our two categories and even to suggest an elucidation of their interconnexion. We may begin by observing that, of the two relations of Category B, the second, $w=12(7-p)$, is such as to make the weight

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[1] See p. 337.

[2] Cf. p. 333.

[3] Cf. p. 333.

[4] If w is the weight (in shillings) of the farthing-loaf of *panis albus*, then $w+B$ gives the weight (in shillings) of the farthing-loaf *de toto blado*.

[5] Both Add. 14252 (2) and the *Chronica majora* give 88*s.* as the weight of the farthing-loaf *de toto blado* when corn is 1*s.* 6*d.* per qr., but the former gives 66*s.* against the latter's 77*s.* for the corresponding weight of the farthing-loaf of *panis albus*; 66*s.* is, obviously, nearer the correct value (and may well be the correct value) and is therefore the variant taken here.

[6] Provided that we take the reading of Add. 14252 (2)—66*s.*—against that in the *Chronica majora*—77*s.*—for $p=1s.\ 6d.$, as we have already done under (1) above—66*s.* may, in fact, now be taken as the correct value.

[7] Salter's remark (p. 130) 'the Statute...was nothing more than recognizing what existed already, and ordaining that the same scale should be used throughout the realm' is thus wrong.

[8] Not corrected until Tottell.

of the farthing-wastel-loaf increase (respectively, decrease) by a shilling for every penny the price of corn goes down (respectively, up); whereas the first one, $w=8(8-p)$, has a similar increase (respectively, decrease) of eightpence weight per penny price. If we imagine that the system originated at a time when the price of corn was subject to not much greater a fluctuation than that between 1*s.* 6*d.* and 4*s.* 6*d.* a quarter, further, that a start was made with a fixed weight for a fixed price (for instance, 60*s.* weight for 2*s.* price), then the application of the Principle of 'a shilling up on the weight for a penny down on the price'—certainly a not unreasonable or difficult Principle—would lead, quite naturally, to the Relation $w=12(7-p)$. But, at some period when the price of corn rose above about 4*s.* 6*d.*, it might well have been felt that the weight calculated according to this was an unreasonably small one, leading to an undue profit for the Baker, and that the substitution of eightpence for a shilling in the Principle would lead to a fairer result; hence the relation $w=8(8-p)$ for the higher prices of corn. However, at some period when the price of corn rose higher still—say above 6*s.*, the point at which the Table of Category B ends—even the application of this new relation, $w=8(8-p)$, would no longer avail to keep the weight reasonably high. It would be clear that the whole system of Category B was breaking down and that some completely new one was necessary. This might well lead to the conclusion that the fair arrangement was for the weight to be directly proportional to the amount of corn that a baker could buy for a fixed sum of money, i.e. inversely proportional to the price. Now, it so happens that the relations $w=12(7-p)$ (of Category B) and $wp=136$ (of Category C) yield the same values of w for two values of p which lie extremely near to 'uncomplicated' and readily noticeable values figuring in the Table, namely 2*s.* 6*d.* and 4*s.* 6*d.*[1] Is it too far-fetched to suppose that someone, looking at the Category B Table in the manner suggested above, observed that the relation that he was seeking did, in fact, hold in the case of these two values, 2*s.* 6*d.* and 4*s.* 6*d.* and that he then proceeded to apply the Principle of Inverse Proportion to obtain other values, including the one later to become the basis of the Category C Table, $w=136$ when $p=1$?[2]

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[1] For the (two) roots of the equation

$$\frac{136}{p}=12(7-p)$$

are (to the nearest farthing) 4*s.* 5½*d.* and 2*s.* 6½*d.*

[2] The other relation of Category B—$w=8(8-p)$—would not have yielded a similar (and thus, possibly, rival) result, for there is no value of p which gives the same value of w for both $w=8(8-p)$ and $wp=136$ (for the (two) roots of the equation

$$\frac{136}{p}=8(8-p)$$

are imaginary).

Our sole document of Category A is so short that it is difficult to draw any conclusion from it. However, we do see that, in it, *panis bissus* (which is No. 7 'Bread Treet—cf. *Liber Albus*, III, 411 and Studer II, xxxvi) is, indeed, twice the weight of Wastel, as it should be under the rules of Category C (p. 339) for, in Add. 14252 (1), the half-penny wastel-loaf weighs 60*s.* and that of *panis bissus*, 9 marks (=9 × 13*s.* 4*d.*= 120*s.*). The weight of Wastel (thus, 30*s.* for a farthing-loaf) here bears, however, none of the three relations given above (p. 340) to the two prices of corn per quarter (40*d.* and 38*d.*)—if, as seems probable, these prices really are per quarter.

In the foregoing, I have postulated three classes of corn-prices as having been of importance for the arithmetic of the Assize of Bread, namely (1) between 1*s.* 6*d.* and 4*s.* 6*d.*; (2) between 4*s.* 6*d.* and 6*s.*; (3) above 6*s.* It is tempting to try to relate these classes to definite dates. Unfortunately, there has been comparatively little publication of corn-prices prior to the second half of the thirteenth century (Rogers' *Tables of the Prices of Grain* (II, 4 *et seq.*) do not start until 1259–60, a period already too late for our purpose). However, N. S. B. Gras lists the 'Prices of Wheat sold on the Manors of the bishopric of Winchester, 1208–1299' at pp. 370 *et seq.* of his *Evolution of the English Corn Market* (Cambridge, Mass., 1926) and his Wheat Statistics at pp. 338 *et seq.* of his *Economic and Social history of an English Village (Crawley, Hampshire) A.D. 909–1928* (Cambridge, Mass., 1930), also begin in 1208. A glance at Gras's two Tables shows that to attempt to attach our Classes I (1*s.* 6*d.*–4*s.* 6*d.*) and II (4*s.* 6*d.*–6*s.*) to any definite periods is quite impracticable. But it is perhaps worth noting that there was a period of high prices not very long before the date to which the Statute is attributed (1266). I have in mind the years 1256–9. At Crawley the average prices were 7*s.* 6½*d.* in 1256–7 and 8*s.* 6*d.* in 1257–8 (the next entry is that for 1264–5). Gras does not give any further information for the Bishopric of Winchester for 1256–7 but he does give details for 1257–8 and 1258–9 (the next entry being that for 1262–3). In 1257–8 the prices range from 3*s.* 4*d.* (at Taunton) to 8*s.* (at many places) with an average, over all the entries, of 6*s.* 10*d.*; the corresponding figures for 1258–9 are 5*s.* (at several places—the entry 4*s.* 8*d.* at Waltham may be neglected as it is for such a very small quantity, namely, ¼qr.), to 11*s.* (at Ivinghoe), average 7*s.* 10*d.*

LORD BURGHLEY'S HOUSEHOLD ACCOUNTS

By CONYERS READ

BY an accident of survival we have, preserved at Hatfield House, a detailed account book running to over 500 folio pages and written in the hand of Thomas Billot,[1] steward of William Cecil, first Lord Burghley. It begins in October 1575 and ends abruptly on 27 September 1577, with some pages evidently missing at the end. It deals exclusively with household finances day by day, with a weekly summary of receipts, expenditures and inventory on hand.[2]

No attempt is made in this account book to distinguish between the two houses, Cecil House in Westminster and Theobalds, and the indications are that for extended visits to either house a large part of the staff accompanied the family. It is evident that Billot made some of his entries in Westminster, but most of them at Theobalds. Except for a brief stop on his way to Buxton in 1577, Burghley, during the two years in question, does not seem to have visited Burghley House in Northamptonshire. We must in any case assume, in the absence of evidence to the contrary, that Billot's account covered the household expenses wherever the household happened to be. There is a summary of Billot's accounts in Cecil Papers, Box G 16, covering the years from Michaelmas 1566 to Michaelmas 1572, and from Michaelmas 1573 to Michaelmas 1578. Accounts for 1572–3 are missing. The first lot, from 1566 to 1572, are in Burghley's own hand and are brief summaries; the second lot, from 1573–1578, are in Billot's hand and go into more detail. Two copies of the accounts for 1575–6 survive, one of them incomplete, differing in detail but not widely different in totals.[3]

These accounts make some mention of income, but evidently only that part of income which flowed through Billot's hands. Most of the money he spent was paid over to him in cash by Burghley himself. Evidently Burghley kept a good deal of ready money on hand. In Cecil Papers A/c 4/16, the cash balance of £1,802. 15*s*. 9*d*. is referred to as distributed:

1,	In a new leather bag in my Lord's [Burghley's] own keeping	£539.	0*s*.	0*d*.
2,	In an old leather bag in his keeping	£273.	18.	9.
3,	In a canvas bag in the counter of my L.'s study	£513.	15.	0.
4,	In another canvas bag in the same place	£476.	0.	3.

It will be noted that these items do not add up to the total indicated.

Income from 'Rentals' disclosed by these accounts comes to £1,720. 4*s*. 7*d*. in 1574; falling the next year to £763. 4*s*. 7*d*. the next to £394. 3*s*. 6*d*., the next to £127, the next to £19. But this probably means that rentals which in the earlier years had flowed through Billot's hands, flowed later through other channels. It probably indicates simply a change in accounting practice. From other indications we gather that, during the years in question, Burghley was acquiring a good deal of land in Hertfordshire as part of his development of Theobalds. Up to the year 1580 he had invested some £12,240 in Hertfordshire real estate, much of it park land and timber land. We also have record (1571–8) of land purchases in Edmonton, Middlesex, amounting to £1,667. 6*s*. 6*d*. The anonymous contemporary biography of Burghley published by Peck in *Desiderata Curiosa* estimates Burghley's income from rentals as never above £4,000. But certainly the real estate holdings disclosed in his *Inquisitio post mortem* were very considerable.[1]

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[1] Billot was Burghley's steward up to the time of B's death (cf. F. Peck, *Desiderata Curiosa* (1732–5), I, 55) and one of the executors of his will. Later he received an annuity from Burghley's son Robert (*Ibid.* vi, 13).

[2] Cecil Papers, vol. 226. The MS. is very fragile. I have worked on the microfilm copy, a product of an enterprise to microfilm the whole collection at Hatfield House, undertaken by the Marquess of Salisbury and the Folger Shakespeare Library.

[3] Note that these accounts all run from Michaelmas to Michaelmas. I refer to them by year of their terminal date.

Two other recurring items of income in the household accounts of the 1570's are (1) wood sales, which varied from a minimum of £25. 16*s*. 4*d*. in 1577, to a maximum of £189. 14*s*. 3½*d*. in 1575; (2) sale of farm products, which varied from a maximum of £237. 8*s*. 0*d*. in 1576, to a minimum of £160. 9*s*. 11*d*. in 1575. It is to be noted that these sales are mainly of oxen, hides, fells and tallow. Of wool sales, except for one year, 1574, when they ran to £25. 14*s*. 10*d*. there were virtually none. Burghley was probably not participating in the marked trend towards sheep grazing.

Curiously enough, salmon figure rather prominently in the accounts of sales, £11. 12*s*. in 1574, and £8. 11*s*. in 1575. They must have come from the river Lea which flowed close to Theobalds and was one of Sir Isaac Walton's favourite haunts some seventy-five years later. The Lea of course was a tributary of the Thames, and Walton himself observed that the best salmon in England came from the Thames. Unfortunately we cannot identify Burghley himself with the gentle art.

The household accounts are much more illuminating on the expenditures side of the ledger. They are concerned for the most part with food, drink, clothing and fuel, though we occasionally get records of taxes paid, debts discharged[2] and real estate purchased. They are particularly illuminating on Burghley's building enterprises, designated in the accounts as 'Works'. Beginning with 1566, his expense for Theobalds mounted steadily to a peak of £2,673. 0*s*. 0*d*. in 1572. During the period from 1566 to 1578, he spent altogether on Theobalds over £12,000, to which, if we add recorded expenditures for land in one way or another connected with Theobalds, brings the investment in that property to about £25,000.

During the years 1567–72, he spent some £750 on Cecil House in Westminster; and during the years 1574–8 about £200 on Burghley House in Northamptonshire. In a period of eleven years he spent on building alone an average of over £1,000 a year.

The household accounts arrange themselves under a number of headings:

The Pantry, chiefly bread;
The Buttery, beer and ale;
The Cellar, wine;
The Kitchen, which included normally beef, mutton and veal, and what were known as acates, or sweetmeats. The acates generally cost as much as all the other kitchen items put together;
Provisions, sometimes called the Larder, which included supplies of grain, meat not butchered, and fish;
The Chandry, candles, torches and the like;
The Woodyard, wood, charcoal and sea coal;

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[1] I, 35. Peck prints Burghley's *Inquisitio post mortem* in Bk. v, 27 *et seq.*

[2] The following entries appear under the designation 'Debts paid'; in 1569, £200; in 1570, £70; in 1571, £400; in 1572, £200; in 1574, £280.

The Wardrobe, included garments for the family and liveries (summer and winter) for the staff. Here we get seamsters' and tailors' and shoemakers' bills. The cost for liveries is generally segregated.

Purchases for offices, such as kitchen utensils, candlesticks, andirons and furniture.

Then there are two categories, (1) Ordinary Allowances, and (2) Extraordinary Allowances; which seem tobe sort of catch-alls for items not falling into other categories. Originally the Ordinary Allowances were designated to include necessary expenditures, such as wages,[1] rent, New Year's gifts and the like; and Extraordinary Allowances, those non-recurrent. But the distinction was by no means invariable. The item 'Assart' (i.e. expense of converting waste land to arable) was assigned in 1574 to Ordinary and in 1575 to Extraordinary Allowance, and the same was true of New Year's gifts. Doctors' bills, of which I find mention of only two, each for £10, and Apothecary's bills, fell normally under Extraordinary Allowance.

The Garden was a separate item, and usually included garden utensils, seeds,[2] casual help such as weeders, and wages for the gardener. These came to 10*s.* in 1574, but in 1575 had gone up to £4. 8*s.* 8*d.* in 1576 to £8. 13*s.* In 1578 the expense of the gardens at Burghley House in Northamptonshire and at Theobalds are given separately, and come to £11. 19*s.* 2*d.* at the former and £11. 18*s.* at the latter. Both of them include the purchase of fruit trees, but there is a payment for roses at Theobalds and another payment there for the gatherers and setters of flowers.

The Stable included provender, straw, horse shoeing and such equipment charges as did not fall under the Sadler, who provided harnesses and saddles and kept them in repair.

There was a separate item which went under the name of Riding Charges, the sixteenth century equivalent of travel. It apparently included expenses on the road of all sorts. Burghley and his family did a good deal of riding back and forth between London and Theobalds. On only one occasion is it recorded that he went by water.

If we take an average of three years from 1574 to 1578 (omitting 1575 because of the additional expenses of a royal visit) we get: Pantry, £18. 4*s.* 4*d.*; Buttery, £49. 11*s.* 7*d.*; Chandry, £31. 10*s.* 4*d.*; Woodyard, £157. 12*s.* 11*d.*; Kitchen, £648. 8*s.* 8*d.*; Wardrobe, £172. 18*s.* 10*d.*; Provisions, £120. 8*s.* 1*d.*; Supplies, £11. 6*s.* 3*d.*; Ordinary Allowance, £364. 6*s.* 9*d.*; Extraordinary Allowance, £262. 18*s.* 11*d.*; Garden, £12. 4*s.* 0*d.*; Stable, £95. 10*s.* 9d.; Sadler, £24. 0*s.* 9*d.*; Riding Charges, £68. 19*s.* 0*d.*; which totals up to an average of a little over £2,000 for household expenses. Of this amount £850, nearly half, went in food and drink; about a tenth for heat and light; about a fifteenth for wages. The average of the year's household expenses of five years in the previous decade (i.e. 1567–71) comes to about £1,300. In short, Burghley's household expenses during the five years following his elevation to the peerage in 1572 were about half as much again as they had been.

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[1] Wages are recorded as follows: 1568, £100; 1570, £80; 1571, £104. 18*s.* 2*d.*; 1572, £99; 1574, £166. 9*s.*; 1575, £172. 7*s.* 8*d.*; 1576, £166; 1577, £166; 1578, £190. 13*s.* 5*d.*

[2] William Waad, in May 1578, sent Burghley fifty sorts of seeds from Florence (*SalisburyMSS.* II, 255) 'the rarest and most excellent to be found in all Italy'. There are repeated references to bird seed, which encourages the hope that Burghley was a bird lover. But an item in the accounts for 1578 refers to wiring for the bird cage, which suggests exotic birds in captivity, though it may refer to the hawk mews.

We have no household accounts during the decade of the 1580's, but abbreviated and rather haphazard accounts for the years 1592–95.[1] If they can be relied on they show an average of about £820 per annum, hardly more than a third of what Burghley had been spending twenty years before. He was probably living much more frugally towards the end of his days.

These are one or two more morsels in the accounts which throw some light upon Burghley's habits. In the detailed book of 1575–7, Billot noted the comings and goings of Burghley and the members of his family. It was after all hardly more than twenty miles from Cecil House in Westminster to Theobalds. The best way perhaps to reveal the situation is to list Billot's brief comments:

12 November 1575	My Lady to London in the morning.
20 November 1575	My Lord and Lady came from London.
28 November 1575	My Lady to London with 10 persons.
14 December 1575	My Lord from London to dinner.
18 December 1575	My Lord to London, early morning.
21 December 1575	Ladies to London after breakfast.
9 January 1576	My Lady from Court in the morning.
27 January 1576	My Lady to London in the morning.
2 February 1576	My Lord and Lady from London with 13 servants.
21 February 1576	My Lady and Lady Oxford[2] from London at night.
2 April 1576	My Lord and both Ladies from London.
19 April 1576	My Lo. to London in the afternoon.
6 May 1576	My Lady at supper and 10 servants with her.
7 May 1576	My Lady to London after dinner.
16 May 1576	My Lady and Lady Oxford from London with 16 servents.
18 May 1576	My Lady to London after dinner.
31 May 1576	My Lord and Lady down over night.
2 June 1576	Both Ladies to Court the forenoon.
7 June 1576	My Lo. and both Ladies from London for dinner, 16 servents.
14 June 1576	My Lo. from London.
21 June 1576	My Lo. from Sir A. Coke's burial and 10 servents.
22 June 1576	Both Ladies and 13 servants with them for dinner.
18 July 1576	Ladies and Mr Killigrew from London.
28 July 1576	My Lo. and 7 servants from London.
4 August 1576	Both Ladies from London with 22 persons.
8 August 1576	My Lo. from London and 15 servants.
9 August 1576	My Lo. to Court in afternoon and 15 servants.
20 August 1576	My Lo. came from Court.
22 August 1576	My Lo. went to Court.
25 August 1576	My Lo. came from Court.
26 August 1576	My Lo. went to Court.
29 August 1576	My Lo. to Court for dinner.

[1] Cecil Papers, A/c. 27. In these accounts the receipts are recorded under two categories: (1) Livery Money; (2) Foreign Accounts. Receipts from Livery Money (which I take to mean income from Wards and Liveries) are recorded for the four years in question as £765. 4*s*. 0*d*.; £664. 6*s*. 0*d*.; £536. 6*s*. 0*d*. and £754. 9*s*. 9*d*. Foreign Accounts (which may mean other accounts) are recorded as £172. 7*s*. 9*d*.; £155. 0*s*. 10*d*.; £206; £182. 16*s*. 10*d*. There is no mention of rents. Revenues from Livery Money during those four years aggregated £2,721. 1*s*. 9*d*. Another memorandum on the same subject recorded by Hurstfield in *Trans. R.H.S.* 4th ser. XXXI, 108, seems to indicate Burghley's revenues from Wardships for the years 1597 and half of 1598 as amounting to £3,103. 6*s*. 8*d*. We need not attempt to reconcile the marked descrepancies between these two totals, since the Household Accounts simply record Livery Money paid to Billot, not necessarily all the Livery Money received.

[2] Burghley's daughter Ann, wife of the 17th Earl of Oxford, from whom she was estranged.

16 September 1576	My Lo. to Court by water.
6 October 1576	My Lo. from London at night.
9 October 1576	My Lo. to Court.
16 October 1576	My Lo. and Lady to Harrington marriage.
17 October 1576	My Lo. and Lady from Gidea Hall.

Billot's entries are far from complete, but we get a picture of Burghley, sometimes alone, sometimes with his wife and daughter, sometimes with a staff of servants, making frequent visits to Theobalds, usually on horseback, on one occasion by water. In August 1576, Lady Burghley and Ann came down from London on the 4th with twenty-two servants, and Burghley followed four days later with fifteen servants. On the following day he returned to London with fifteen servants, on the 20th he returned to Theobalds, on the 22nd he went to Court, on the 25th he returned from Court, on the 26th he went to Court again. On the 29th he got to Theobalds in time for supper, the following morning he left to dine at Court. Usually the record does not show any such constant shuttling back and forth, but it is quite clear that Burghley, when he was approaching sixty years, did not hesitate to take a twenty mile ride to London one day and back again the next. And Lady Burghley did the same. We hear of them going together to the funeral of Lady Burghley's father in June and to Mr Harrington's marriage in October, but generally their journeys abroad were either to London or to the Court. It is not clear whether they regarded Cecil House in Westminster or Theobalds as their principal habitat. According to the anonymous biographer, they maintained a staff of eighty in Westminster and of twenty to thirty in Theobalds.[1] And since Burghley kept the law terms at the Court of Wards, he probably spent most of his time at Westminster. It may not be without significance that the first dated catalogue of his library, prepared some sixteen years after his death, located it at Cecil House, though it will not be forgotten that Theobalds had been conveyed to the Crown before that catalogue was made. Billot observes in his detailed account of 1575–7, at the end of each quarter, that the Extraordinary Expenses of the law terms were included in the account, though he does not indicate what they were. In any case, Burghley clearly preferred life in the broader country-side and went to Theobalds when he could.

Billot, in his detailed accounts of 1575–7, made note of dinner guests, no doubt to justify increased expenses occasioned by their presence. He records among the great ones, in April 1576, the Earl of Huntingdon, President of the Council of the North, Sir John Perrott, later Lord Deputy of Ireland, Sir William Fitzwilliam, who was to hold the same office and Lord Cobham, Warden of the Cinque Ports; in June, the Earl of Northumberland, brother to the traitor Earl; in July, Sir Henry Killigrew, Burghley's brother-in-law; in September, Lord Henry Howard, brother of the traitor Duke of Norfolk, Sir William Fitzwilliam again and Lord Hunsdon. In January 1577, the Earl of Ormond, head of the Irish Butlers, Lord Henry Howard again and the Attorney General. In March, the Earl of Leicester, the Earl of Warwick, Sir James Crofts, the Comptroller; throughout February and March, the young Earl of Essex. In June, Sir James Crofts again; in July, Lord Thomas Howard, the Attorney General and Sir William Fitzwilliam again; in September, the Dean of Westminster, together with the Provost of King's College, Cambridge and the vicar of the parish. Nothing much can be gathered from this list. Young Essex was of course

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[1] Peck, *op. cit.* I, 29–30.

Burghley's ward, spending two months in the Burghley household just before entering Trinity College, Cambridge. It is rather surprising to find Lord Henry Howard and Sir James Crofts as guests on two occasions. Both of them were Catholic sympathizers and both of them became pensioners of the King of Spain. There is a nice gesture in the presence of the vicar of the parish at a dinner for the Dean of Westminster and the Provost of King's.

Billot mentions scores of lesser guests besides. He also records a dinner at Cecil House in Westminster to members of the Privy Council, some thirteen of them, including the Lord Admiral, the Comptroller, Mr Secretary Walsingham and those whom Billot designates as 'such like persons'.

The anonymous biographer is loud in his praise of Burghley as a dinner companion:

> He was of a spare and temperate diet and the finest feeder of any man that I ever saw, eating never but of two or three dishes, drinking never above twice at a meal and very seldom wine. And he would, many times, forbear suppers if he found his stomach offended.
>
> And above all things, whatsoever business was in his head, it was never perceived at his table, where he would be so merry, as one would imagine he had nothing else to do; directing his speech to all men according to their qualities and capacities. So as he raised mirth out of all men's speeches, augmenting it with his own. Whereby he wanted no company, so long as he was able to keep company.[1]

Villa Nova, Pennsylvania

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[1] *Ibid.* 49. He cites also a statement to the same effect in Peacham's *Compleat Gentleman.*

THE DIFFUSION OF TINPLATE MANUFACTURE

By W. E. MINCHINTON

Of recent years considerable attention has been devoted to the problems of economic growth. The factors involved are numerous and their interaction complex, but one of the essential ingredients in the development of an economy is the improvement of its technical resources. This can be done by the acquisition of a wider range of manufactures or the replacement of old methods by new. Some of these technological improvements evolve within an economy while others are acquired from outside. This second process, the diffusion of techniques,[1] can be studied in terms of a particular group of countries[2] or of individuals[3] but it is the purpose of this article to examine it in a third way, in the case of a particular industry, the tinplate industry.

The origins of the manufacture are still obscure but tinplate appears to have been first made in Germany, most probably at Wunsiedel in the Upper Palatinate, in the early fourteenth century.[4] It soon proved to be a most useful material and, by the sixteenth century, was used for a variety of purposes, including domestic and dairy ware, boxes and containers, the protection of panelling and roofing.[5] Its employment for such purposes increased in the following centuries and the range of tinware manufactured was extended. Then, from about the middle of the nineteenth century a most marked change in the demand for tinplate took place with the development of food canning and petroleum production, consumer-goods industries whose production has expanded rapidly in the last hundred years. It is these newer uses which provide the stimulus for the continued expansion of tinplate manufacture.

In the history of this industry there have been three phases: each has been dominated by a different country and each has been concerned with a different technique of production. The first phase, from the beginning of the manufacture until about 1750 was the German phase, when first the Upper Palatine and then Saxony formed the main centre of production and the plates or sheets were made with the tilt-hammer. The second phase, from 1750 to about 1930, was the British phase. In it the rolling mill was the method of sheet production. In both these phases the dominant area held a position of virtual monopoly and the spread of techniques was slow. The third phase is the American phase, with tinplate produced by the strip-mill cold-reduction process and tinning carried out by the electrolytic instead of the hot-dip process used in the previous periods. In this phase the diffusion of techniques has been more rapid than hitherto. In each case the dominant country has been the leading metal-working country during its period and in each case it has served as the main centre for the diffusion of the technique of tinplate production.

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[1] On the general question of diffusion see F. Redlich, 'Ideas: their migration in space and transmittal over time', *Kyklos*, VI (1953), 301–22.

[2] As W. O. Henderson, *Britain and Industrial Europe 1750–1870* (Liverpool, 1954).

[3] As R. T. Berthoff, *British Immigrants in Industrial America 1790–1950* (Cambridge, U.S.A. 1953).

[4] F. Hessel, *Die Zinnblechhandelsgesellschaft in Amberg und ihre Stellung in der Gesamtentwicklung der Weissblechindustrie* (Erlangen, 1914) and F. Ress, *Der Eisenhandel der Oberpfalz in Alter Zeit* (Munich, 1951).

[5] F. W. Gibbs, 'The tinplate workers', *Annals of Science*, VI (1950), 390–403.

Three methods of diffusion have been of importance. Knowledge of the methods employed have been transferred from one country to another by travellers' reports, by the migration of skilled workers, and by the export of machinery. In the German and British phases the first two methods were predominantly used: in the American phase the third method has been the most important means of diffusion.[1] In practice, of course, no such sharp differentiation existed between the methods used—in earlier periods industrial spying was often the essential preliminary to the migration of skilled workers while today the reports of experts often precede the placing of orders for equipment from foreign countries and assistance from skilled foreign workers is usually required at first—but for analytical purposes the distinction can be validly made.

I

During the German period of dominance, the art of tinplate manufacture, like other crafts, tended to be jealously guarded to prevent foreigners from discovering the details of the processes and strenuous efforts were made to hinder or discourage the migration of skilled workers. Though the difficulties of manufacture may have been exaggerated, considerable skill was required to produce satisfactory tinplates. There were problems to be overcome in the manufacture of the iron sheets, in cleaning them and in tinning them. Their solution by the uninitiated was sufficiently difficult for the German industry to maintain its monopoly for a long period.

But the precautions against visitors learning the details of the manufacture were not always strictly maintained. Andrew Yarranton, who went to Saxony in 1665 to obtain information about tinplate manufacture there for a syndicate of Midland ironmasters, reported that he and his companion were very civilly treated.

> Contrary to our expectation [he wrote], we had much liberty to view and see the works go, with the way and manner of their working and extending the plates, as also the perfect view of such materials as they used in clearing the plates to make them fit to take tin with the way they used in tinning them over, when cleared from their rust and blackness.[2]

His sponsors were sufficiently impressed with his account to make a token quantity of tinplate. These the workers who used them reported as 'much better than those plates which were made in Germany'.[3] But the English patent for the manufacture of tinplate had already been granted to William Chamberlaine and Dud Dudley in 1661 (and renewed in 1673) so this experiment was not followed by production on a commercial basis.

More important as a method of diffusion was the migration of skilled workers. One of the earliest attempts to make tinplate outside the Upper Palatinate was made by a Nürnberg tin merchant, Andreas Blau, in 1536. Deprived of supplies by an embargo on exports he brought workers from the Amberg region and successfully established the manufacture at Blauenthal and Zwickau in Saxony.[1] By 1618 there were twelve tinplate works there and the centre of gravity of the German tinplate industry had been moved eastwards.

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[1] The migration of minorities does not appear to have played a part in this case. See W. C. Scoville, 'Minority migrations and the diffusion of technology', *Journal of Economic History*, XI (1951), 349–50. But printed accounts of the processes may have been of some importance. Most influential was probably R.-A. de Réaumur's '*Principes de l'Art de faire le Fer-blanc*' published in Paris in 1725 and in an English translation by William Rutty in *Philosophical Transactions* (1728). In it de Réaumur recommended soaking in acid waters instead of scouring with sand as the better method for cleaning the plates. His advice was followed, notably in England.

[2] *England's Improvement by Sea and Land*, Part II (1681), pp. 150–1.

[3] *Ibid.* p. 151.

Following the outbreak of the Thirty Years' War, further efforts were made in various countries, which were deprived of supplies of German tinplate, to found native industries. In England an attempt was made, probably in Hampshire in 1623,[2] in France at Scey-en-Varais (Franche-Comté) in 1627,[3] in the Spanish Netherlands at Dinant in 1628,[4] and in Sweden in the same year.[5] In every case, except the English works, skilled German workers were brought. In Sweden, for example, Louis de Geer employed German tinners while two German workers, Pierre and Evrard Meybosch, were largely responsible for the project at Dinant. A decade or so later there were attempts in France and in the Principality of Liège. In France about 1648, Jacques Soyer, a merchant of Paris, published a pamphlet in which he declared that he had already set up a tinplate works and that he had brought in German workers and their families to operate it. The plant, he stated, had been operating for the previous two years.[6] In the Principality of Liège, Francois van Soeten de Boustrout and some associates, also using German craftsmen, set up a tinplate works near Namur in 1642.[7] But in none of these attempts, so far as is known, was more than a small quantity of tinplate made.

Despite these failures, further attempts were made to establish what Colbert called 'one of the most curious, the most useful and the most sought-after of all the industries of Europe' outside Germany. The stimulus came from the growing demand for tinplate, the desire of ironmasters to find uses for their semi-products, the concern of politicians and economists with the balance of payments, and the occasional failure of the wholesale merchants at Hamburg,[8] the chief distributing centre, to meet all their orders. And again skilled workers were induced to leave Germany to man the works. In France, where Colbert had declared his attention to establish the industry 'at whatever price it might cost', production was begun at Beaumont-la-Ferrière (Nivernais) in 1668. Though this works never flourished, efforts were continued and other works were set up, including one at Chenesey (Franche-Comté) in 1700. Here, as elsewhere, German workers were employed. In this case 'not finding themselves supported by the intelligence and protection to which the trade owed its origin', they had no success and withdrew.[9] Though the results were far from commensurate with the efforts involved, a tinplate industry was from the end of the seventeenth century established in France.

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[1] E. Matthes, 'Einfuhrung der Weissblechindustrie in Sachsen, 1536', *Archiv für Sippenforschung und alle Verwandten Gebiete*, XXIX (1942), 121–7, 154–9. There was the legend that 'a Romish priest, turned Lutheran' served as a spy and brought the knowledge on which the Saxon tinplate industry was founded to Saxony in 1620. See P. W. Flower, *A History of the Trade in Tin* (1880), p. 39.

[2] By John Tilte. F. W. Gibbs, 'The rise of the tinplate industry', *Annals of Science*, VII (1951), 33; W. E. Minchinton, *The British Tinplate Industry* (Oxford, 1957), pp. 4, 249.

[3] B. Gille, *Origines de la Grande Industrie Métallurgique en France* (Paris, 1951), p. 18.

[4] J. Bovesse, 'L'industrie du fer-blanc dans le Comté de Namur aux XVIIe et XVIIIe siècles', *Annals de la Société archéologique de Namur*, XLVII (1954), 287–357.

[5] A. Nachmanson and D. Hannerberg, '*Garphyttan: Ett gammallt bruks historia* (Stockholm, 1945), p. 90.

[6] C. W. Cole, *Colbert and a Century of French Mercantilism* (New York, 1939), I, 238–40

[7] Bovesse, *loc. cit.* p. 25.

[8] E. Matthes, 'Andrew Yarranton und die sachsiche Weissblechindustrie', *Stahl und Eisen*, LXXI (1951), 1444.

[9] De Réaumur in Flower, *op. cit.* p. 49.

Of the attempts at the same time in Styria and Sweden, the former was a failure. The ironmasters there were able to make only blackplate (untinned iron plate) since they failed to secure the experienced tinners, for whom they had hoped, from Saxony.[1] But the Swedish experience was the most successful. With the aid of German workers a sheet works was established at Österby in 1650 and eleven years later a tinplate works, also using foreign workers, was set up at Garphyttan.[2] This was followed by others and the manufacture flourished sufficiently for Sweden to develop an export trade in tinplate in the middle of the eighteenth century.[3] In England, the newly-founded Royal Society took an interest in the industry and made inquiries in 1667 of a correspondent in Liège whether a workman who thoroughly understood the whole of the processes could be induced to come to England. On being told that no plates were at that time made in Liège but that they were obtained from Germany, the Royal Society apparently lost interest and dropped the question.[4] Subsequent attempts were made in Luxembourg,[5] in Spain[6] and elsewhere in the eighteenth century to set up tinplate works drawing on German skill. But none of these was important or long-lived. And the leadership in tinplate manufacture was passing to Great Britain.

During the German phase, the reports of visitors seem to have been unimportant as a means of developing tinplate industries in new countries, largely because of the determination of the German makers to keep the details of the processes secret. The principal method, however uncertain, of transferring knowledge of the techniques involved during this period was, despite the measures intended to prevent it, the migration of skilled workers.[7]

II

Apart from the general reasons on which from the later eighteenth century Britain's industrial predominance was based, her leadership in tinplate manufacture derived more particularly from the development of the rolling mill for the manufacture of the plates. This was successfully achieved by John Hanbury at Pontypool in the 1690's. Some time later tinning was also successfully accomplished there and from Pontypool the knowledge was spread to other works.[8] By 1750 British production was great enough to oust the German product from the home market and in the following years the export of tinplate from Great Britain began.[9] From 1784 British tinplate joined German in the quotation lists of the Amsterdam bourse, a recognition of the status of the British industry.[1] Thereafter the decline of the German industry in the later eighteenth and early nineteenth centuries was matched by the rise of the British.

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[1] Gibbs, *loc. cit.* p. 25.

[2] Nachmanson and Hannerberg, *op. cit.* p. 116.

[3] Exports were small and were mainly to Danzig, Königsberg, France and Russia. Export lists 1749–1800, Riksarkivet, Stockholm.

[4] Gibbs, *loc. cit.* p. 35. There is also a legend that Yarranton returned to England with some German workmen. See E. Rogers, 'On the manufacture of tin plates', South Wales Institute of Engineers, *Transactions*, I (1857–9), 10.

[5] By Nicolas Spirlet at Poix-Saint-Hubert. in 1767. R. Evrard, *Dom Nicolas Spirlet, Maître de forges à Poix, au Châtelet et au Fourneau Saint-Michel* (Liège, 1952), pp. 14–16.

[6] L. Beck, *Geschichte des Eisens* (Braunschweig, 1897), III, 1061.

[7] While the individual travellers left accounts, the movement of skilled workers has not been so comprehensively chronicled. Under the stimulus of very high rates of pay, it was probably more extensive than the records reveal.

[8] F. W. Gibbs, 'John Hanbury 1663–1734', *Annals of Science*, VII (1951), 43–61: and Minchinton, *op. cit.* pp. 10–11.

[9] See P. R. O. Customs 3/41–60.

Though some travellers, like Gabriel Jars,[2] continued to visit the older centres of production in Germany, the significance of the development of the British industry was soon recognized by those in other countries anxious to keep abreast of technical advance. Almost before the industry was fully established, visitors were coming to England to report on the progress of the manufacture here. In the eighteenth century, the Swedes were active in sending industrial spies to other countries.[3] Among those who came to Britain at least two have left accounts of tinplate making. The first, R. Angerstein, came in 1753 and visited Pontypool and Wooland (Somerset):[4] the second, B. Qvist, came in 1766–7.[5] In the same year two Germans came from Neuwied-on-Rhine to find out the secrets of the success of the British industry.

No doubt there were others that came who have so far escaped notice. However, we know that the stream of visitors continued. About 1820, when tinplate manufacture was languishing in Germany and had already ceased in Sweden, further travellers came from those two countries. From Germany came two officials of the Prussian mines to report on mines and industries in Great Britain. In the course of their tour of South Wales, they visited several tinplate works. At Ynysygerwn (near Neath) the old ideas of secrecy persisted. They were not allowed to see the tinning department and were able to have but a hasty glance at the mill, but at Kidwelly, Pontypool and Carmarthen they were better received.[6] Shortly afterwards when there was talk of reviving tinplate manufacture in Sweden, an observer, P. Lagerhjelm, was sent to South Wales to report on the methods used there. He has left an account of the manufacture at Llanelly.[7] Later in the century when it was proposed to make tinplate in the U.S.A., visitors came from that country to investigate. In 1868 the Cambria Iron Co. sent experts who, like others coming in the next few years, reported unfavourably on the prospects of establishing the industry in the U.S.A.[8]

But in the British phase the reports of individual travellers did not lead to the establishment of tinplate manufacture elsewhere, it was the migration of skilled workers from South Wales which was the effective method. By this means works were set up, in the later nineteenth century, in Russia, the U.S.A., Spain and Italy and, in the early twentieth century, in Belgium and India.

By far the most important development was the establishment of the industry in the U.S.A. With the aid of some Welshmen who had been tinplate workers in South Wales, three works were established, at Wellsville (Ohio), Demmler (Pa.) and Leechburg (Pa.), between 1872 and 1874. But they operated for only a short period for falling prices of imported plate, together with the reduction of

[1] J. C. Westermann, *Blik in het Verleden* (Amsterdam, 1939), pp. 27, 39.

[2] *Voyages Métallurgiques* (Paris, 1774). He saw tinplate works at Johann Georgenstadt (Saxony), Graslitz (Bohemia) and Johannisfors (Sweden) but did not visit any tinplate works when he came to England in 1764. See Henderson, *Britain and Industrial Europe*, pp. 38–9.

[3] See A. Birch, 'Foreign observers of the British iron industry during the eighteenth century', *J. Econ. Hist.* xv (1955), 23–33.

[4] 'Resa genom England', MS. in Riksarkivet Stockholm.

[5] MS. also in Riksarkivet.

[6] Their report was printed in *Archiv für Bergbau und Huttenwesen*, III (1820).

[7] 'Om svensk och engelsk jernberedning', *Swea* (1826), pp. 70–5.

[8] V. S. Clark, *History of Manufactures in the U.S. 1607–1928* (Washington, 1928), II, 99.

the tariff on imported tinplate in 1875, soon made production unremunerative and all the works had ceased production by 1877.[1] In the next decade such men again planned American works for which they recruited hands from South Wales. By July 1891 when the heavy duty on imported tinplate embodied in the McKinley Tariff Act[2] came into force there was no shortage of skilled tinplate workers in the U.S.A. and their number was considerably augmented by those who emigrated to America in the 1890's as a result of the post-McKinley depression in South Wales.[3] Cheap steel, tariff protection, abundant capital and a rapidly-expanding home market were important factors in the successful establishment of tinplate manufacture in the U.S.A., but so was skilled labour.[4] So swift was the subsequent growth of the American industry that in 1912 it outstripped Great Britain to make the U.S.A. the largest tinplate producing country in the world.[5]

Less spectacular were the developments in which Welsh workers played a part in Europe. In Russia, following abortive experiments in the seventeenth century, there were later attempts and a tinplate industry was eventually established there in the early nineteenth century.[6] But the first project in which Welsh workers were involved took place in 1872. In that year a group of tinplate workers went to start a works in the Urals but as the position proved too isolated the project was soon abandoned. A few years later, in 1875, a second and more successful attempt, organized by Phillips of the Dafen Works (Llanelly) was made at Hughesovka (now Stalino) near Odessa and operated for a considerable period.[7] Finally in 1908, a further works, on the outskirts of Moscow, employed Welsh workers initially to train the native workmen in the practices of the trade.[8]

The depression in South Wales in the 1890's saw Welsh workers migrate not only to the U.S.A. but to Italy, Spain and Belgium. In 1892 the Darfo Works in Lombardy was established and in the following year the Magona Works at Piombino in Tuscany was set up, both being staffed by Welsh workmen.[9] In the same year which saw the foundation of the first Italian works, a tinplate works, also manned by Welsh workers, began operation at Bilbao in northern Spain.[10]

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[1] H. A. Knox, *Development of the American Tin Plate Industry* (Pittsburgh, n.d.), p. 11: Berthoff, *British Immigrants*, pp. 68–9.

[2] A duty of 2½ cents per lb., equivalent to about 70%. F. W. Taussig, *The Tariff History of the United States*, 7th ed. (New York, 1923), p. 273.

[3] Knox, *op. cit.* p. 18; Berthoff, *op. cit.* p. 69.

[4] 'Their industrious contribution to United States' production efforts were invaluable', Knox *op. cit.* p. 18. 'The early works relied on the skill of Welsh workers, using Welsh machinery and Welsh techniques', Berthoff, *op. cit.* p. 69.

[5] In that year 877,526 tons of tinplate were produced in the U.S.A. compared with 822,100 tons in Great Britain, International Tin Research and Development Council, *Statistical Year Book, 1939*.

[6] The earliest Russian attempt was made by two business men, Akema and Marcelius, on the river Vaga in 1644: in 1721 tinplate production began in the Urals and by the mid-nineteenth century there were at least seven works in production. Information from Institut Istorii estestvoznaniya i tekhniki, Moscow. See O. Vogel, 'Entwicklung und gegenwärtiger Stand der Weissblecherzeugung', *Stahl und Eisen*, XXIX (1909), 1097–1107.

[7] For the Hughesovka Works see David Williams, 'Welsh settlers in Russia', *The National Library of Wales Journal*, III (1943–4), 55–8.

[8] See S. R. Cound, *Proceedings of the South Wales Institute of Engineers*, XXXI (1915), 171–95, 211–44. Cound was manager of the Moscow works.

[9] See *South Wales Evening Post*, 10 December 1953, 1 February 1954, in which were printed accounts by some of the workers who went to Italy in 1892 and the following years.

[10] Information from the firm concerned, Sociedad la Artistica, Vigo.

Lastly, in 1902, some Welsh workers helped to start a tinplate works at Charleroi in Belgium.[1]

During the First World War the reduction of tinplate exports from Great Britain provided a stimulus for some of the importing countries, deprived of supplies, to plan to produce their own tinplate. Among them was India. Negotiations between the Burmah Oil Company and the Tata Iron and Steel Company led to the construction of a tinplate works at Golmuri (Bihar).[2] To man it Welsh workers were recruited. Like the Italian and Spanish works, this Indian works is still in operation.

The importance of the Welsh tinplate workers' contribution varied. In some cases—Belgium and Russia—it was comparatively slight, in others, notably the U.S.A., it was considerable, in yet others—India, Italy and Spain—it was crucial. But whether marginal to the economic life of the countries concerned or responsible for setting in motion notable changes, the migration of skilled workers proved during the British phase to be an effective way for diffusing the technique of tinplate manufacture.

III

In the German and British phases, given the appropriate environment, the successful development of the manufacture depended on the possession of trained workmen.[3] In their experience, skill and manual dexterity rather than in the machinery employed lay the key to effective manufacture. In consequence the movement of machinery appears to have been almost absent. It was only in the later projects, from the American attempts of the 1880's on, that machinery was brought from the main producing area to assist in the establishment of the industry.[4] But the main agency of diffusion was still the migration of trained workers. In the third phase the main method is by the export of machinery.

Like Great Britain, the U.S.A. has become the centre of diffusion because it was there that a radical modification of the technique of manufacture was carried out. This was the invention of the strip-mill cold-reduction sequence of processes. The main defects of the pack-mill method used during the British phase were that it was discontinuous, that it depended on the skill of the worker, that the size of plate produced was limited to what a man could handle and that the plates produced were not sufficiently uniform in weight and gauge to be satisfactorily employed in automatic can-making machines. Under the stimulus of the rapid expansion of the automobile industry, a method of continuously rolling steel sheet was developed in the U.S.A., the first works coming into production at Ashland (Kentucky) in 1923.[5] At first this steel sheet was not suitable for tinplate production but in 1929 the cold-reduction process was added to the strip mill to produce steel sheet of the required qualities.[1] The first stage of tinplate manufacture had become a continuous process.

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[1] W. A. Howells, *South Wales Evening Post*, 22 December 1954. His father went first to Italy in 1896, then to Charleroi in 1902 and later to Russia with S. R. Cound in 1910.

[2] *Iron and Coal Trades Review*, 26 January 1923.

[3] See H. Levy, *Monopolies, Cartels and Trusts in British Industry* (1927), p. 211 and *Report of the Tariff Commission* (1904), I, para. 889.

[4] Berthoff, *British Immigrants*, p. 69. Baldwins Ltd. sent machinery from South Wales to equip a short-lived works in Canada. This they brought back to use in their Elba Works (Swansea) built in 1925. In 1934 Richard Thomas & Co. sent out some machinery for their abortive project at Sarnia in Canada. The export of machinery increased when mechanical tinpots were developed. John Player sent his tinning pots to the U.S.A. and Russia from the 1890's on. Player MSS. One of the German works visited by British Intelligence teams in 1946 was equipped with British machinery, B.I.O.S. Final Report No. 1216, *Tinplate Manufacture in Western Germany*.

[5] British Iron and Steel Federation (B.I.S.F.), *Monthly Statistical Bulletin*, XXVIII, No. 7 (July 1953, revised ed. April 1955), 'The wide strip mill'.

Since 1929 the process of manufacture underwent considerable improvement and great efforts were made to make the other stages of manufacture continuous. In the 1930's a method of tinning electrolytically was developed in the U.S.A., but the high cost of operation deterred immediate adoption. During the Second World War, however, the rising price and growing scarcity of tin and, since the war, the continued high price of tin, completely altered the situation.[2] An increasing proportion of tinplate manufacture in the U.S.A., in Great Britain and elsewhere, has been electrolytically tinned.[3] Pickling and annealing, the two important intermediate stages of tinplate manufacture, have also become continuous processes. In this way the whole sequence of operations has been transformed.

While the adoption of new methods in the previous phases was slow, in the American phase it was swift. Aided by the fact that the demand for tinplate, unlike that for most other iron and steel products, remained buoyant in the U.S.A. in the 1930's, the re-equipment of the American industry proceeded apace. By 1943 the last old-type works had been closed in the U.S.A. Outside the U.S.A. the process has been somewhat slower. Since the new process was a highly-mechanized, mass-production technique, it could only be adopted if sufficient capital was available and the country concerned had a large enough potential market to render the operation of such a plant an economic proposition for, unlike the older methods, it could not be operated on a small scale. Before 1939 only one strip mill for tinplate manufacture had been erected outside the United States, at Ebbw Vale in Great Britain.[4] It was equipped with American machinery.

Since 1945 a number of countries have erected, or are in course of erecting, strip mills and cold-reduction plants for the manufacture of tinplate. Among them are the British Abbey Works (Port Talbot), the Belgian Ferblatil Works, the French SOLLAC plant at Ebange (Moselle), the Dutch works at Ijmuiden and the Brazilian Volta Redonda project.[5] All of them are built on the American model, use American patents and are equipped with American machinery. From the U.S.A. too have come most of the modifications of these new processes. In this direction the U.S.A. has the lead in innovation.[6]

In striking contrast with the two previous phases has been the ease with which tinplate manufacture has been developed in new countries. Given certain conditions—access to supplies of steel, of water, of tin, and the availability of labour—the manufacture can be established in an industrialized country within a short period, little more than the time it takes to construct a plant. So the list of tinplate producers is being swelled by countries, like the Netherlands and Brazil, which have never previously made tinplate. The export of machinery from the U.S.A. is proving a quick and effective method of spreading knowledge of these industrial processes.

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[1] Knox, *American Tin Plate Industry*, p. 37.

[2] W. E. Hoare and E. S. Hedges, *Tinplate* (1945), pp. 255–66. A method of electrolytic tinning was also developed in Germany in the 1930's but no later commercial development took place.

[3] In 1954 over 72 % of U.S. tinplate was electrolytically tinned: in Great Britain about 30 %. International Tin Study Group, *Statistical Supplement 1955*.

[4] There were two other strip mills for sheet production, in Germany at Dinslaken and in Russia at Zaporozhye (Dnieper Basin). The Russian works was equipped with American machinery. Germany also had a Steckel mill—a reversing mill—for strip production. B.I.S.F. 'The wide strip mill'.

[5] In addition to those mentioned, other strip-mills to make sheet have been built, almost all using American patents or equipped with American machinery. *Ibid.* pp. 10–19.

[6] The only new strip mill in the U.S.S.R. (at Nizhne Tagil, Urals) is equipped with the machinery taken as war reparations from the pre-war German works at Dinslaken. 'It would appear, therefore, that neither Russia nor her satellites have yet been able to build a mill of this type.' *Ibid.* pp. 2–3.

IV

But, as the foregoing account has shown, it was easier to diffuse technical knowledge by the methods discussed than to establish the manufacture in new countries.[1] The successive improvements in technique, which reduced the importance of skilled labour, facilitated the spreading of the industry. The growth of the tinplate industry in Great Britain was the result of John Hanbury's substitution of the rolling-mill for the tilt-hammer while the growth of the American industry and the other new industries since 1945 has been the result of the development of the strip-mill cold-reduction process. But though technological innovation provided a solution to some problems, there were others which were economic, social and institutional. These, too, needed to be solved before a tinplate industry could be successfully established in a new country.

First, there was need for adequate capital. It took time to build and equip a works and train workers before production could begin. A number of works, including those at Namur[2] and Bisham-on-Thames,[3] were abandoned because the capital was exhausted. Secondly, entrepreneurial ability was required. As de Réaumur reported, there were 'gentlemen who went into new enterprises and wanted a quick and immediate profit. They gave up the attempt if success did not come quickly enough'.[4] Though some foreign entrepreneurs, like Louis de Geer in Sweden or William Edwards (of Morriston) in the U.S.A., helped to set up works, they were exceptional. As Professor Habakkuk has written, the international mobility of enterprise was apparently low. Some native initiative was thus essential.[5]

And thirdly, tinplate could not be made in the new countries, at least in the short run, as cheaply as it could be imported. Some tariff protection was therefore essential. Colbert placed a tariff on imported tinplate in 1664 and raised it in 1667,[6] while the English duty on imported plates was increased substantially from 8*d.* per hundred sheets to 5*s.* 3*d.* per hundred sheets in 1704.[7] India increased her tariff on imports of tinplate in 1923[8] and, most famous of all, the United States gave protection to her tinplate producers by the McKinley Tariff Act of 1890. The effectiveness of the 'infant industry' argument for tariffs has been abundantly demonstrated in the history of the tinplate industry.

Capital, entrepreneurial ability and tariff protection are but some of the conditions which needed to be satisfied. Knowledge, too, was important. The purpose of this article has been to illustrate from the history of a single industry some of the methods used to spread information about the methods of manufacture. The generalizations which can be derived from it are of less specialized application. It has demonstrated the limitation of the individual traveller as an agent for the diffusion of techniques: it has shown that, when the processes of manufacture rely heavily on skill and craftsmanship, this is almost impossible unless skilled workers migrate and that, even then, the growth of the new industry is slow: and it has made clear how comparatively easy it has been, in the twentieth century to spread modern machine techniques 'within a civilization which has a common core of scientific and technical knowledge'.[1]

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[1] For a general discussion of the relative slowness of industrialization in Europe see Henderson, *op. cit.* pp. 3–4 and H. J. Habakkuk, 'The historical experience on the basic conditions of economic progress', *International Social Science Bulletin*, VI (1954), 192–3.

[2] Bovesse, *Annales de la Société archéologique de Namur*, XLVII (1954), 334.

[3] Before 1711. Rhys Jenkins, 'The early days of the tinplate industry' in E. H. Brooke, *Monograph of the Tinplate Industry* (Swansea, 1932), p. 25.

[4] De Réaumur in Flower, *op. cit.* pp. 61–2.

[5] *Loc. cit.* p. 192.

[6] C. W. Cole, *op. cit.* II, 327.

[7] By the Subsidy Act, 3 & 4 Anne c. 5.

[8] The Indian tariff was 2*s.* 6*d.* per ton in 1914, £4. 10*s.* per ton in 1923 and £6. 7*s.* 6*d.* per ton in 1927. *Iron and Coal Trades Review*, 14 January 1927.

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[1] Scoville, *J. Econ. Hist.* XI (1951), 349.

ESSAYS IN BIBLIOGRAPHY AND CRITICISM

XXXIV. ECONOMIC GROWTH

By K. E. BERRILL

I

PROFESSOR ARTHUR LEWIS has called his latest work *The Theory of Economic Growth.*[1] As a title this is most misleading for the book contains hardly any economic theory and nothing at all on models of economic growth, whether of the classical or the modern mathematical kind. Its scope is best described in the author's own phrase as a 'map' of economic growth; an attempt to describe in simple terms and by reference to the experience of various countries all the factors which can influence the growth process in a developing economy. The author tries at the same time to suggest which of the many alternative paths of growth are likely to provide the smoothest travelling.

Lewis begins his map-making by defining a growing economy as one where output per head is rising. Output per head depends on some six factors; the effort to economize, the technique of production, the stock of capital, the size of the population, the natural resources of the country, and the institutional framework. The book is then devoted to a study of how and why these six factors may vary and interact so that growth is encouraged or prevented. As a quite separate problem he concludes with an appendix on 'The desirability of economic growth'.

His section on the first determinant of growth 'the will to economize' is the weakest part of the book. The subjects are vast (wealth and social status; the attitude to work; the spirit of adventure), the treatment of each is necessarily very brief, and the conclusions verge on the platitudinous. But it is hard to be sure whether this is because the author is unhappy in these sociological fields or because of the nebulous nature of sociology itself.

On 'Economic institutions' as a factor in growth he is much more at home and deals in a clear and commonsense manner with security of property and of income; with the importance of communications, public utilities and the extent of the market; with the mobility of labour between occupations and the movements of families between social classes. Then come five case-studies of key institutional aspects of growing economies: slavery, religion, the family, agriculture, and cottage industry.

The section on slavery illustrates one of the main weaknesses. The treatment shifts uneasily from generalizations which are said to be drawn from the historical experience of growth in many countries to generalizations which arise from *a priori* arguments, which are then illustrated by historical references. Slavery is treated partly in one way and partly in the other. But by the end of one theoretical section Lewis has demonstrated how slavery is incompatible with economic growth, unless there is a continuous supply of slaves from the outside. As *a priori* theorizing it is brilliantly done, but one wonders how the conclusion squares with the experience of growth in the slave cotton areas of the southern United States in the early nineteenth century.

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[1] W. A. Lewis, *The Theory of Economic Growth* (Allen and Unwin, 1955).

On religion he takes a view which is in opposition to those historians who have regarded the Protestant Ethic as a vital positive force in capitalist economic growth. In Lewis's judgment all religions are a brake on growth since growth means social change and nearly all religions are socially conservative. However, there clearly may be vast differences in the braking power of different religions so they can be an important determinant of growth in a negative sense.

On agriculture, too, Lewis takes an independent line and will not follow those who have argued that in a backward economy industrial development must wait upon the reorganization of land tenure. It is true that increased agricultural output is usually a vital pre-requisite of growth and tiny peasant farms burdened with heavy rents and with rural indebtedness are not an ideal system from which to get increased food production. But reorganization of land holdings and of marketing systems is a slow and difficult business and luckily there is no need to wait for it. Even in a backward peasant society agricultural output can be increased quickly and cheaply by improved technology and by village credit agencies. Agricultural extension services, fertilizers, new seeds, pesticides, are especially effective. In Lewis's judgment, then, rapid industrialization and peasant agriculture are quite compatible and coming from an economist of such wide experience in these matters, this conclusion must be set down as one of the most important in the book.

Having dealt with the will to economize and the institutions which condition it, Lewis next has a brief chapter on 'Knowledge'. Here he deals in rapid succession with the changing role of science, the willingness to apply new ideas in production and the problem of producing the necessary skilled men. On this, he laments the reluctance of underdeveloped countries to allow the necessary wage differentials and high rewards for skilled work. In just the same way they are often unwilling to allow the high rates of profit which are necessary if heavy investment is to occur under private enterprise. They tend to under-estimate also the need in the early stages of growth for a large programme of teacher-training if the bottlenecks in the skilled labour supply are to be broken.

In Lewis's presentation the fourth determinant of growth—'capital formation'—is by far the most important and his treatment of it is the best section of the book. Stagnant economies are, in practice, those investing under 5 per cent of their Net National Income; whereas developing economies invest 12 per cent or more. The problem of 'take off' is the movement from one condition to the other. But the relationship of increased investment to increased output varies considerably from one industry to another and Lewis has an excellent short section on the theory and the facts of capital-output ratios. Despite these wide variations in the effects of investment in different industries the fact that some two thirds of investment has to be on construction and public utilities enables him to make the generalization that since investment is crucial to growth and investment is largely construction, it is the bottleneck of the building industry which is the true limit to expansion. In economic growth there is no substitute for cement, steel, bricks, timber, and skilled building labour and it is the supply of these which must be increased fast enough if expansion is to proceed.

II

This, then, is the core of the book; the judgment that the true limit to growth is the capacity of the construction industry, and not either poverty or the ability to command savings. Poverty is not crucial because, in his presentation, there is no country so utterly poor that it could not invest 12 per cent of its net national income without disaster if it really set its mind to it. One reason why poverty is not crucial is that very poor agricultural countries usually have a large supply of surplus labour in the villages which could be employed in construction without the country as a whole requiring much more food. Secondly, as we have said, Lewis believes that rapid increases in agricultural output can be achieved in most backward peasant areas by using better technical methods. Poverty then, in the sense of not having enough to eat, is not a bar to more investment in the way that a lack of construction capacity can be. As for the problem of extracting 12 per cent of savings to match investment, Lewis argues that this is a political rather than an economic problem. There are three possible sources for the savings; foreign loans, inflation and taxation. Under present conditions of the political relationships between the advanced and the backward countries, foreign borrowing is unlikely to supply much capital. As for the alternative internal sources of saving, some degree of inflation is very likely to occur in an expanding economy and indeed a reasonable amount can be helpful since it usually results in large profits which are most likely to be ploughed back into more investment if the prospects for even higher profits are good. But inflation and high profits are not attractive political programmes in any democratic country, least of all an underdeveloped one. As for raising savings by taxation, the problems here are that backward countries are almost entirely agricultural and if taxation is to yield an appreciable percentage of the national income it must involve some burden on the countryside. Politically and administratively this may be very difficult, unless the area is an exporter of primary products and the world price rising fast enough for them to be heavily taxed at the ports and yet not reduce the price received up country by the peasants.

So that in saying that construction capacity and not savings is the ultimate barrier to economic growth, Lewis is not implying that the savings can always be obtained under democratic conditions in a backward economy. He emphasizes that the mass of the people in most underdeveloped economies are both nationalistic and egalitarian minded. It may not be politically possible to provide the savings either by taxing the poor agriculturalist or by inflation and high profits. This implies that a form of dictatorship may be the only path by which many economies can take off into expansion.

So much for the effort to economize; the institutional background; the improvements of technique; and the accumulation of capital. These may create a developing economy in the sense that the total national income is increasing, but economic growth is defined as an increase in output per head and this must depend partly on the rate of change of population and partly on the natural resources of the area in question. These two aspects form the subject matter of the next chapter. The section on population growth describes how death rates can be brought down from 40 per thousand to a little over 10 per thousand very quickly under modern conditions. Broadly speaking, 10 points per thousand can be gained from improved communication, which stops the recurrence of local famines; another 10 points can be retrieved by the widespread use of modern drugs and elementary sanitation; and the last 10 points can be more slowly achieved by the spread of adequate health services to the population as a whole. Some such process probably occurred in the agricultural and industrial development of Western Europe, but there the changes were spread over centuries and not telescoped into decades. The effect of this sharp and rapid fall of the death rate on the size of the population depends of course on what happens to the birth rate. Judging by the experience of advanced countries, we expect this to follow the death rate down after a lag, but there is no way of knowing how long the lag will be or even a guarantee that the birth rate must eventually fall. While it remains high, population will continue to increase at between 1½ per cent to 2½ per cent a year. The effect of this increase is that a considerable proportion of the capital formation has to be devoted to providing equipment for the expanding labour force. With a capital to output ratio of say 3:1, some 5 per cent to 8 per cent of the net national income will be needed each year just to keep income per head from falling. Even if the country succeeds in investing 12 per cent, this leaves very little over for economic growth. The rate of increase of output per head is hardly likely to rise above 1 per cent or 2 per cent per year. In this situation the gap between the standard of living of the advanced and the backward countries will continue to widen.

The argument that it is hard for backward countries to begin to catch up would be more convincing if the experience of communist countries did not make it suspect. They appear to have had both a rapid increase in population and a fast rate of economic growth. The explanation lies of course in their holding down consumption so that investment can be much higher than Lewis assumes and also they enjoy a very low capital output ratio due probably to their intensive use of equipment and the very low average age of their stock of capital.

Finally, in his treatment of the effect of investment Lewis considers the important influence of natural resources. Underdeveloped countries are divided into 'over-populated' and 'under-populated'. Over-populated countries are those which have a high ratio of labour to land and where there is very little good land that is not already cultivated. India and China are obvious examples. Under-populated areas are in the reverse situation, where transport and irrigation will open up large new fertile areas. An over-populated area will find it much more difficult to take-off into growth because it will be comparatively hard to expand food production to keep pace with rising real incomes and increased population. In such cases a balanced growth of the industrial and agricultural sectors allowing self-sufficient economic expansion will be harder to obtain. Over-populated countries must strive for a rapid development of export industries so that they can buy the necessary food with foreign exchange; alternatively, the over-populated area must try to organize migration of labour to other lands. Thus, the logic of economic growth in an over-populated backward economy is very similar to the Marxist analysis of advanced capitalism leading to imperialism. The expanding country has a desperate need for cheap food and raw materials from abroad, it struggles for external markets, it wants colonial outlets for its surplus population, it may even be willing to exploit subject colonial peoples or go to war to gain its ends. This situation is inherent in its growth and its over-population and it is immaterial whether the country is organized on capitalist or socialist lines. As well as arguing that under these conditions socialist countries will experience 'imperialist' pressure, Lewis denies that capitalist economies necessarily advance to imperialism and war and is most explicit in his rejection of the thesis that wars are primarily economic in origin, with only a very sketchy treatment of these important issues. When he has demonstrated that imperialism *need* not occur or that wars *need* not be primarily economic he then slips easily into the assertion that historically they *were* not.

III

It is not very difficult to indicate the scope and argument of this book but hard to evaluate its importance. Perhaps it can be summed up as a very brave attempt at a general treatment in this vast new fashionable field of growth economics. The people who may find the most to quarrel with it are economic historians, for it is a fundamental criticism that this book is meant to be based on different experiences of growth, i.e. an historical study. Yet the historical evidence is most weakly presented. Although the book is 400 pages long there are no footnotes. The same historical illustrations appear time and again in the text and they are not all easily acceptable. Japan always gets top marks for the way she conducted her growth process. Russia is treated only post 1917 and is near the bottom of the class. Huge areas never appear at all. The method too, may well be criticized. Reference has already been made to the uneasy shifting between *a priori* theorizing illustrated from history and generalization said to be drawn from a comparison of the experience of growth in many countries. One other general comment should be made. This is a cross-section method of studying the history of growth without sufficient attention being drawn to the limitations of such a method. Lewis tackles growth aspect by aspect and refers rapidly to what happened in this sector in a number of different countries. But a country's experience in one sector depends on all the forces and institutions taken as a whole. Cross-section analysis without enough analysis in depth is a dangerous way of deriving historical truths.

Yet, when every reservation has been made, this is an important book. It is clear, packed with good commonsense, and has a logical completeness which ensures that few will read it without being reminded of problems and alternatives that are often forgotten. Above all it is a first-class work to give to a student; not as a definitive study but one which will outline the whole field. If the judgments which are made are not documented and supported as fully as we would like, we know that they come from one of the foremost economists in the field of development economics and will be careful to weigh them accordingly.

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REVIEWS AND SHORT NOTES

GREAT BRITAIN

T. S. Willan. *The Early History of the Russia Company, 1553–1603.* (Manchester University Press. 1956. Pp. vi+295. 30*s.*)

The Russia Company was the first of the great Elizabethan trading companies. Founded to seek a North-East passage to the spices and jewels of the Orient, it stumbled by accident upon a trade with the remote empire of Muscovy. Always at the mercy of Czars more ferocious and arbitrary than Stalin, the trade struggled on somehow or other throughout the reign of Elizabeth, bolstered at times by hopes of penetrating to India via St Nicholas, Moscow and Persia, depressed at others by the dishonesty of its agents, Cossack plundering, the burning of Moscow by the Tartars, and the competition of English interlopers and foreigners, sometimes using the alternative route via the Baltic.

The records of the Company were destroyed in the Great Fire, and Dr Willan has had to explore the most varied sources. But from the point of view of the economic historian, the loss of these official records has done irreparable damage that no amount of gleaning among law-suits and port-books can hope to repair. Despite every effort, Dr Willan is unable to give a firm answer to some of the most vital questions of capital investment and percentage profit. All that is clear is that, despite ups and downs due to the hazards of the trade, the exchange of English manufactured goods for the raw materials of Russia—wax, tallow, furs, flax and hemp—was potentially very profitable. Merchants were lured on by dreams of the rewards if things went well—as occasionally they did.

In the main, the nature both of the trade and of the surviving records forces Dr Willan back to an intriguing narrative of diplomatic sparring between Elizabeth and the Czars. The latter sought girls and guns, ammunition and technical assistance, an asylum in case of trouble and a military alliance against their enemies. Elizabeth stuck grimly to the details of trading privileges, and avoided all political and matrimonial entanglements.

It must be emphasized that quantitatively in terms of shipping used, capital invested, and value of imports and exports, the Russia Company was of only minor importance to the Elizabethan economy. Nor was it important qualitatively, since its exports were of negligible significance, and the Eastland Company soon offered an alternative supply from the Baltic of the same imports. The chief interest of its history lies in the struggle to maintain a monopoly in the teeth of every kind of opposition, and in the strange diplomatic and personal relations between Elizabeth and the English merchants and envoys on one hand and on the other the barbarian autocrats and their brutish subjects in this forbiddding northern Empire. The story has been told before by Professor W. R. Scott and others, but never so fully or with such painstaking scholarship. It will never need telling again.

Lawrence Stone

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Patrick McGrath (ed.). *Merchants and Merchandise in Seventeenth Century Bristol.* (Bristol Record Society, XIX. 1955. Pp. xl+315. 27*s.* 6*d.*)

Mr McGrath must be congratulated on the industry with which he has searched out records in Bristol, London and elsewhere to illustrate the life and activity of Bristol merchants in the seventeenth century. For the historian of trades and industries in which Bristol took a part, this book will provide a useful survey of the available source materials; for the Bristolian, an introduction to the kind of records on which the economic and social history of his city is based. It is refreshing to find that so many of the documents reproduced are records of business transactions, of the behaviour of business men, rather than of the organizations which, with greater or less success, tried to control them. This new illustrative material for business history is most welcome.

The economic historian may, however, be disappointed in the book. The material is too diffuse to present a clear picture of the nature and organization of Bristol trade at any time; and above all, it fails to bring out an impression of the great changes which that trade was undergoing. Yet no century saw Bristol more transformed than did the seventeenth, and probably no major port was ever so drastically and so rapidly revolutionized in its activities as was Bristol between 1630 and 1670. Formerly earning its living from the short-distance traffic across the Bristol Channel, supplemented by limited dealings with France, Spain and Portugal, the city had become, by 1700, the terminal of a great transatlantic commerce in sugar and tobacco; and in connexion with this it was gathering for export the products of the growing iron industry of the Severn valley. The change from the short (one- or two-month) to the long (eight- or ten-month) voyage; the forging of links with trustworthy agents in pioneer settlements thousands of miles away; the advance from the distribution of raw materials such as hides and wool, with established and stable markets, to the distribution of sugar and tobacco in rapidly increasing quantities, for which markets and processing industries had to be created; all these changed completely the character as well as the scale of the business problems of a great many Bristol citizens, and did so in the space of an active lifetime.

Mr McGrath's introduction reveals little interest in the processes of change at Bristol, and indeed on p. 228 he gives a warning against exaggerating the relative importance of the transatlantic trades. The outsider might hesitate to press his own view against Mr McGrath's specialist knowledge; but the tables of trade and shipping in the appendices show ample reasons for rejecting a static approach.

RALPH DAVIS

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RICHARD PARES. *Yankees and Creoles.* (Longmans, Green. 1955. Pp. 163. 25*s*.)

The pattern of trade between England, the West African coast, the West Indian plantations and the mainland colonies of North America, has for some years been appreciated in general terms. As a triangle, or a quadrilateral, of trade it has been accepted as a factor in the thought-processes of statesmen and of theorists. It needed to be brought to life by treatment in terms of the immediate, short term and largely personal, interests of the shippers and merchants engaged in the trade. To this task Professor Pares brings an unrivalled knowledge of the considerable store of the private papers of West Indian and New England merchants, planters and ship-owners, and he makes of the trade between the Yankees and Creoles a lively and satisfying study of the actual business of merchandizing between the islands and the mainland.

The sort of question which needed to be asked, and which this book both asks and answers is: Who were the entrepreneurs in this trade? Where were the ships built, and where owned? How were bulky cargoes of timber set against sugars, rum or molasses? How were remittances made? How did the ship-owner secure his return cargo? And how did wind and weather set a pattern for the trade? These are vital questions, for if the answers had not been satisfying to those engaged, the trade would have ceased whatever the legal, military or national issues involved.

The Port Books for the islands might have helped a little in assessing the proportions of shipping owned in the islands and in the colonies, but the private papers and American data on which the study is based provide both satisfying and stimulating answers. The way in which the early preponderance of English merchants and shippers, and the competence of the West Indians themselves, yielded in the course of the eighteenth century to the dominance of the New Englanders is, for example, at the same time a satisfying generalization and a challenge to further thought; for the trade of the New Englanders was beset with many difficulties. Their use of the West India trade as a means of getting sugars for remission to England gave place to a more sophisticated technique as bills of exchange came into general use, but there remains a difficulty in discovering the profit and loss of the trade—and some voyages certainly made losses—for individual voyages are seldom fully documented.

The revelation that short crops were frequent, that captains often had to wait months for a return cargo (especially if their ships were not built for the West India trade with storage measured for hogsheads, and had to fill up with cotton or small casks), and that salt was a steady stand-by for a return cargo—all of these things make the trade a thing of multiple exchanges and of considerable confusion, but real and comprehensible in its immediate problems. This is a realistic approach to the trade, human and vital in a way which makes it the necessary counterpart of the abstraction of a 'pattern' of trade. Although many questions remain unanswered it is probable that they are unanswerable; and the papers of the merchants and ship-owners show us the real stuff of commerce—profit and loss, the purchase and the sale of cargoes, knowledge of markets, and the handling of remittances. This is a basic contribution to knowledge of the imperial economy of the eighteenth century. E. E. Rich

St Catherine's College, Cambridge

L. S. Pressnell. *Country Banking in the Industrial Revolution.* (Oxford: Clarendon Press. 1956. Pp. xvi+553. 70*s.*)

This study began as a history of a single bank—the Banbury firm of Gillett and Tawney—and broadened into the much more ambitious project of a general history of country banking between 1760 and 1830. In the course of this development, the author was led into an impressive search for unpublished material taking him, among other places, through the records of the clearing banks and the Bank of England, the county record offices, the records of turnpike trusts, canal companies and enclosure commissioners, and a number of private collections. In terms of statistics the results were disappointing—a continuous series of accounts extending over twenty years or more for only three banks; balance-sheets for a single year or a few scattered years for seven healthy banks; and the last records of six deceased ones derived from their bankruptcy proceedings. That so much effort should have produced so little reward is a sad commentary on the state of business records for this period.

On the other hand, Mr Pressnell has gained a great deal of non-statistical evidence from the sources already mentioned, from a meticulous combing of the much used minutes of Parliamentary committees, and from a large number of secondary sources. He is thus in a far better position than any previous writer to give an impressionistic picture of the country banking system, and this he does with great skill.

The new picture does not revolutionize existing ideas, but it does modify them in a number of important respects. Mr Pressnell has collected a great deal of information about the origins of country bankers, which shows that they were generally persons of considerable substance. There were industrialists, lawyers engaged in 'money scrivening', a few landowners, merchants and wholesale traders but very few retailers. Clearly Liverpool's famous remark that, 'Any petty tradesman, any grocer or cheesemonger, however destitute of property, may set up a bank in any place', was distinctly misleading. Not only were individual banks stronger, but the system was more closely knit than is sometimes thought, both through the activities of London agents and through personal connexions both between one country bank and another and between London and the country. Even the record of bankruptcies, Mr Pressnell shows to be rather less black than it appears at first sight.

On the volume of notes and deposits and on the distribution of assets, a statistical answer is the only really satisfactory one, and this Mr Pressnell is unable to give, though he has made a very full collection of the impressionistic evidence. On the use of bank credit he is able to go rather further by reference both to records of the banks themselves and to those of turnpikes, canals, local authorities and enclosure commissioners. Here the most interesting conclusions concern the comparatively small number of accounts handled by some banks and the limited amount of assistance which they appear to have given to manufacturing industry. Some banks were founded by industrialists or by persons closely connected with them, and these naturally lent to their associate firms, but there is little evidence of extensive lending to manufacturers by other banks. More information on this point should ultimately come to light from studies of manufacturing firms, but the labour involved will be enormous.

These are the strong points of Mr Pressnell's book. Its weaknesses, to my mind, arise from a failure to make full use of modern economic analysis. This comes out in the discussion of the vexed questions of whether or not the note issues of the country banks were independent of that of the Bank of England, and again in the account of business fluctuations which concludes the book. Also, there is no attempt to set the activities of the country banks against their background, the general pattern of money flows between London and the provinces. These flows must have been very different during the French wars from what they were in peacetime, but this fact is not mentioned and, apart from a few examples of bank participation in loans, there is no discussion of their role in war finance.

These criticisms must not, however, obscure the fact that Mr Pressnell has produced a work of scholarship on a monumental scale. One may still hope that further bank accounts will come to light in private collections, and that detailed industrial studies will show something more of the relationship between firms and their bankers. But it will be a long time before enough new information emerges to justify another full length study of the subject. When that time eventually comes Mr Pressnell's book will be invaluable to the historian of the future; until then it will remain a standard work.

E. Victor Morgan

University College, Swansea

G. D. H. Cole. *Studies in Class Structure.* (International Library of Sociology.) (Routledge and Kegan Paul. 1955. Pp. 195. 21*s*.)

Professor Cole has adopted the, for him, unusual course of publishing a collection of essays all bearing on the same theme, but not proceeding from a single plan. 'I make no pretence', he says, 'that these essays constitute a "book", in the sense of a fully unified whole.' They were written for various occasions. 'I had in mind at one time the possibility of using some of the material they embody in a more systematic treatment; but I see no chance of being able to find time for this.' The many admirers of Professor Cole's great contributions to social history and the social sciences will deeply regret, while fully understanding, this decision. The subject of 'class' is one that cries out for systematic treatment in the bold manner, and Professor Cole has shown in several of his works that he has a special genius for this kind of thinking and exposition. And sociologists who have laboured in this field will probably judge that the ideas and the information contained in these essays would have emerged in a more satisfying form if the author had pondered more deeply on some of the basic questions which he would have been obliged to face and, if possible, to answer, had he undertaken to write a systematic and comprehensive survey of the subject.

In the first chapter, called *Introductory*, which is one of the two essays now published for the first time, Professor Cole dwells on the baffling character of the phenomenon of 'class' and the inconsistencies in the sociological literature on the subject, and he concludes that 'the makers of these conflicting judgments must attach meanings to the word'. But, having set out to discover what these meanings are, he never asks whether they relate to different types of entity (such as 'culture group', 'interest group', statistical category, or system of social levels), but treats 'class' as an object which exists and is familiar, and proceeds only to explore possible disagreements as to the criteria by which membership of a class may be recognized.

In the essay on *The conception of the Middle Classes* (previously published in the *British Journal of Sociology*) one would have liked to see a more careful discussion of the questions whether these 'classes' which stand in the middle have any recognizable qualities which can be properly denoted by the adjective 'middle-class'; whether it makes better sense to group them together as one 'class' with constituent sub-groups or to treat them as two or more distinct 'classes'; and whether the critical points of horizontal division within this area differ from country to country, and if so why and in what ways. Professor Cole introduces his summary list of constituent elements as describing 'the main groups of which the "middle classes" can be regarded as made up today in Great Britain and, I think, also in most of the more advanced countries of the West.' This brief reference to similarities, which no doubt exist, is a poor substitute for the study of those differences between country and country which could shed much light on the nature and the history of social stratification in Europe and North America. Similarly, in the very interesting essay on the influence of technological change in which he discusses the shifting balance between skilled, semi-skilled and unskilled labour, we miss a direct attack on the question whether the whole concept of an industrial 'working class' may not derive from one transient phase in the evolution of capitalism. A comparison between England, on whose history this essay is chiefly based, and the United States (with its ideas of 'plenty of room at the top' and the universal 'middle class'), and also a country like Germany (with its persistent traditions of craft organization) would have forced this question on his attention.

The longest essay, and the second of the two new works in this collection, is on *Élites in British Society*. It is chiefly of importance, not so much for the information it contains, since it does not profess to be based on original research, as for the whole approach to the subject which it expresses. Much English thinking in this field has been marked by an insular form of class-consciousness, and it is salutary to be reminded that the English gentleman is not a universal social phenomenon and also that the type of distinction recently popularized as that between 'U' and 'Non-U' is not the most important aspect of social structure. As far as it goes—and in the space available it could go no further—the picture is well-balanced and convincing. The framework is there as a basis for further researches. And the tentative conclusions are both suggestive and plausible. The following passage gives something near to a summary: 'A society organized in this manner will not have either a single *élite* presiding over all its affairs, or a number of rival *élites*, each at the head of a distinct faction of its people: it will have instead numerous *élites*, whose authority over it will be not general but functional and particular.'

In the final chapter Professor Cole gives us an English version of his French article in which he tried to see how much information about social stratification could be extracted from the one per cent sample of the 1951 Census. He has earned our gratitude by his labours on a necessary but rather thankless task. The job had to be done, and he has done it for us. But there is no aspect in which the results significantly alter the picture which he, and others, had already drawn. One can hardly even say with truth that the effect is to add exact numerical values to data which had previously been only roughly scaled, since in many cases the relevant figures are still far from exact. T. H. Marshall

U.N.E.S.C.O., Paris

I. J. Sanders. *Feudal Military Service in England. A Study of the Constitutional and Military Powers of the 'Barones' in Medieval England.* (Oxford University Press, London: Geoffrey Cumberlege. 1956. Pp. xv + 173. 21*s.*) The latest addition to the Oxford Historical Series seems to have grown out of an attempt to find out what it was that distinguished the *baro* and tenure *per baroniam* in thirteenth-century England. This theme almost at once pushed Mr Sanders back into the times of the Normans and early Angevins in a search for origins. It also brought him face to face with Bracton's dictum—'sunt et alii potentes, qui barones dicuntur, hoc est robur belli'—and the whole problem of military organization. The original topic of his inquiry, however, limits the framework in which military organization is considered. His concern is with feudal military service, and the non-feudal elements even in twelfth-century armies (which Mr Prestwich amongst others has revealed) receive only passing mention. So far as feudal military service is concerned he has added something in depth to the picture already familiar in the work of Sir Frank Stenton, Miss Chew, Professor Painter, S. K. Mitchell and J. E. Morris. In particular this is true of the transition from the summons of fractional service at the end of the twelfth century to the gradual establishment of revised and much reduced quotas in the course of the thirteenth. Important too is his demonstration of the haphazard way in which both baronial status and the new quotas of service were established. Neither Crown nor barons, in an age in which government and private records increased in bulk and improved in precision, seem to have disposed of any adequate evidence of feudal military obligations. Both status and obligations, therefore, were fixed piecemeal and in the light of casual and miscellaneous evidence. Not the least useful thing which Mr Sanders may have done is to throw this oblique light upon the character and competence of thirteenth-century administration. A good deal of useful information is also gathered together in his appendices. He provides details of the service summoned in 1218, 1229 and 1245 and a chart of service done from 1210 to 1322. There is also a brief essay on relief, putting the history of this charge on a sound chronological basis and showing how subinfeudation, the creation of entails, etc. made it harder to levy. This specific illustration of the problems facing feudal lords (including the king) in asserting their rights at the end of the thirteenth century is a useful commentary upon one aspect of the land legislation of Edward I.

Edward Miller

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Calendar of the Close Rolls, Henry VII, Vol. I, 1485–1500. (H.M.S.O. 1955. Pp. 498. 105*s.*) This further instalment of the Calendars of the Close Rolls covers a period during which, as the editor remarks, the nature of the contents was undergoing considerable change. Earlier they contained records of royal instructions, and were rightly regarded as basic evidence for the history of the central government. Later they increase nearly thirty-fold in bulk, and come to comprise almost exclusively enrolments of private dealings in land. The most interesting feature of this volume is the evidence of the scale of the blackmail system of bonds and recognizances for loyalty by which the king tamed his unruly subjects. Henry evidently used this device far more extensively than has hitherto been supposed. It is understood that the series of Calendars of the Close Rolls is to end with the death of Henry VII. Already, however, the political and economic policy content of the Rolls is diminishing. And yet the production is lavish, the use of space generous, the most minute details of trivial private transactions are diligently recorded—and the price of the volume is consequently very high. Does this really serve the best interests of the historians?

LAWRENCE STONE

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JULIUS ISAAC. *British Post War Migration.* National Institute of Economic and Social Research. (Cambridge University Press. 1954. Pp. xix+310. 30*s.*) In the study of population movements over time the exact amount of migration has always been difficult to establish. This is partly due to the difficulty of distinguishing the long-term migrant from the short-term traveller, and partly to the very proper desire of the authorities to minimize the formalities required of British subjects when they enter and leave the country. Official information relating to migration is thus confined on one hand to movement on the long sea routes and on the other to information about alien immigrants provided by the Ministry of Labour and the Home Office. The author of this report was therefore compelled to examine 'a mass of piecemeal information sometimes conflicting and often of doubtful accuracy'. Dr Isaac's aim was two-fold. In the first place the book is a study in method, showing the uses to which the published statistics can be put and examining their consistency. But Dr Isaac's study is more than an exercise in method. The pattern of migration after the war was exceptional in many respects. If differed from that of the pre-war period, and Dr Isaac gives us reasons for believing that the pattern was merely a temporary one. The migration of wives of allied servicemen, the release of British sevicemen abroad, and the wave of migration following demobilization are all discussed. Dr Isaac has done a great service by bringing together the scattered data on the migration of the period, and evaluating their accuracy; his study will remain an indispensable work of reference for future students of the population of Britain during the period.

E. GREBENIK

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ITALY

ARMANDO SAPORI, *Studi di Storia Economica* (*secoli* XIII–XIV–XV). (Florence: Biblioteca Storica Sansoni. 1955. 2 vols. Pp. xxxii+1370. Lire 8000.)

This is a new edition—the third—of the *Studi* of Armando Sapori of which the first appeared in 1940 (663 pages), the second in 1947 (907 pages). It is unnecessary to say that the author is as well known as he is widely read, through the magisterial edition of the *Libri di Commercio* of the principal Tuscan Companies; through his remarkable work on the *Arte di Calimala* and the fourteenth-century crisis of the Florentine financiers; through his syntheses *Mercatores* and through his recent study *Le marchand italien au moyen Age* (published in Paris by the Ecole des Hautes Etudes). To these much appreciated studies, all collected in earlier editions, the author brings twelve new ones. The additions are remarkable as much for their bulk as for the extent of the new contributions they make. Half the new contributions are concerned with the task of synthesizing the problems and questions of methodology and of broad historical themes (*Saggio sulle fonti della storia economica medievale; I beni del commercio internazionale; Il rinascimento economico*), or to wide views of sectors of particular interest (*Le Compagnie italiane in Inghilterra—sec.* XIII–XIV); or to revaluations of weighty questions such as the origins and development of the medieval town (*Città e classi sociali nel Medioevo*), or to reappraisals of such basic problems as the duality between idealism and realism which was so completely a medieval drama (*Economia e morale alla fine del Trecento: Francesco di Marco Datini e Ser Lapo Mazzei*). The other new studies take instead the investigation of particular questions, bringing to them those arguments typical of the outlook and sensibility of the author. Amongst them is the history of commerce (*La famiglia e le Compagnie degli Alberti Del Giudice; Arti e Compagnie mercantili toscane del Due e del Trecento e il principio della pubblicità per registrazione; La registrazione dei libri di commercio in Toscana nell'anno 1605*), the history of high finance (*La banca Medici*). There follows a new article which links up with the various themes treated above, in particular with areas feeding the strength of Florentine commerce at the end of the Middle Ages (*Una fiera Italia all fine del Quattrocentro—La fiera di Salerno del 1478*) and a last essay dealing with an interesting moment in the political history of Florence, examined in the light of the economic and social significance of the laws of the day (*Cosimo Medici e un 'Patto giurato' a Firenze nel 1449*). All these writings, following the standards of work which Armando Sapori has always set himself, are based upon profound knowledge and very great documentation. The two volumes are completed by an immensely rich bibliography and by a detailed name and subject index (made by Giuliana Sapori) which adds greatly to the usefulness of the work. These *Studi*—as all the extensive works of the author—are an indispensable tool of the highest value for every student of Medieval Italy.

Guiseppe Aleati

Pavia

R. S. Lopez. *Settecento anni fa: il ritorno all'oro nell'occidente duecentesco.* (Quaderni della *Rivista storica italiana.* Nr. 4. Naples: Edizioni scientifiche italiane. 1955. Pp. 91. Lire 700.)

Since the publication in 1895 of W. A. Shaw's *History of Currency*, the creation of the gold florin in 1252 has been widely regarded as marking the beginning of an epoch in the monetary history of Europe. Professor Lopez, in this remarkable study, argues that the event is to be understood differently. The introduction of a gold coinage by many states in the second half of the thirteenth century was a reform, not a revolution. The use of gold had never died out in the west, and the gold genovino of Genoa, which Professor Lopez considers preceded the florin by a few months and provided the model on which this was based, was in fact a multiple of the Sicilian *tarì*, and through this coin could trace its descent by way of the *dinar* from the gold *solidus* of the late Roman Empire. The creation of the *genovino* was made possible by two facts, one that the relationship between gold and silver was at that moment exceptionally favourable to gold, and the other that Genoa was on the upswing of a short-term trade cycle between 1248 and 1255.

As in all Professor Lopez's writings, the theses which he advocates are supported by an almost bewildering wealth and variety of information, some of it from unpublished sources, and by reasoning which is sometimes highly ingenious, even if not always wholly convincing.

The view that the introduction of gold was a reform, not a revolution, must I think be rejected. Professor Lopez believes that the West was at no time, not even in the centuries between Charlemagne and Frederick II, without a coinage of gold. This thesis is not discussed at length, and is based almost entirely on material collected by Bloch, who in turn relied very heavily on a series of articles by Monneret de Villard. The evidence produced by these scholars falls far short of proving their case, and Monneret's articles are completely uncritical in the treatment of source material. Gold continued in use in south Italy and Spain, but these regions were not typical of western Christendom. Outside them, a ruler might occasionally strike a few gold coins for some special purpose, and Byzantine *nomismata* or Arab *dinars* might sometimes serve as a standard of value or be employed on occasions of ceremony, but they were not in ordinary commercial use. It would be as reasonable to argue that western Europe is still on the gold standard because Liechtenstein struck gold 10- and 20-franc pieces in 1946 and the English sovereign is widely used in Greece.

The argument that the gold *genovino* is derived from the *tarì* seems to me equally doubtful. The *tarì* was originally a quarter-dinar, and so a coin of pure gold weighing 0·88 gm. This ceased to be struck towards the middle of the twelfth century, and the word came to be used in two senses: either as a generic name for the debased gold coinage of Sicily, which was struck of irregular weight but regular fineness, eventually 16⅓ carats, or as a unit of weight equivalent to a thirtieth of an ounce, i.e. 0·88 gm., the original weight of the quarter-dinar. The *genovino d'oro* weighed 3·53 gm., and unlike most Italian gold coins of the Middle Ages it had fractions, one of which was the *quartarola* of 0·88 gm. Professor Lopez points out that innovations in monetary history are rare, and suggests that the *quartarola* was modelled on the *tarì*. He forgets that both proceeded from virtually the same point, since the Genoese lb. (318·7 gm.) and the Sicilian lb. (317·9 gm.) were practically identical in weight, and this is sufficient to explain the coincidence. Certainly there is no physical resemblance between the *quartarola* of pure gold and the Sicilian *tarì* of base gold. It is more probable that the weight of the *genovino d'oro*, like those of the gold penny of Henry III of England (1257) and the *écu d'or* of St Louis (1270?), was determined by domestic considerations. As Professor Lopez shows (pp. 35–6), it was the equivalent of 10*s.* in Genoese currency. It is reasonable to suppose that it was simply intended to give physical form to a convenient unit of the money of account, just as the earliest heavy silver coins of the fifteenth century, the *lira tron* and the *testone*, were the equivalents of the Venetian and Milanese lira respectively.

On the question of precedence between the gold *genovino* and the florin, it may well be that he is correct, though decisive evidence is lacking. The Genoese annals ascribe the introduction of the *genovino d'oro* to 1252, referring presumably to a year running from March 1252 to March 1253. Villani places the striking of the first gold florin in November 1252, and though his account of the origins of Florentine coinage is woefully incorrect, so precise a piece of information is probably based on good authority. It may therefore well be that the *genovino* was first in the field, and so far as our records go it is the first of the two coins that we hear of. Professor Lopez published in 1936 a document of November 1253 in which reference is made to *quatuor denari grossi aurei ianuini*, but owing to the dropping of the word *ianuini* as the result of a printer's error this important reference has never been noted.

There are a number of details in the book which are perhaps open to question, for Professor Lopez lays no claim to a first-hand knowledge of numismatics and he has sometimes misunderstood or been misled by his numismatic authorities. The faulty dating in the Italian *Corpus* of a large group of florins with unidentified *segni*—the date should be 1252–1422 instead of 1303–1422—has led him seriously to underestimate the production of florins in the thirteenth century. Desimoni's chronological arrangement of Genoese coinage is often arbitrary and in radical need of revision, and I doubt both the date and explanation proposed by Professor Lopez for what he regards as a 'reduced' *genovino*—it is really a two-thirds *genovino*—and assigns to 1292. But the book is interesting and stimulating in a high degree, and it would be ungenerous for a reviewer who has learnt so much from it to end his comments on a note of criticism.

Gonville and Caius College, Cambridge PHILIP GRIERSON

BRUNO CAIZZI. *Il Comasco sotto il dominio spagnolo. Saggi di storia economica e sociale.* (Como: Centro Lariano per gli studi economici. 1955. Pp. 227); *Il Comasco sotto il dominio austriaco. Saggi di storia economica e sociale.* (*Ibid.* 1955. Pp. 233.)

These two volumes, published only a few months apart, are the fruit of long and patient research in the archives, enlivened by a personal knowledge of the various regions in the district of Como, and founded upon an excellent training in economic theory. The first volume is based principally on financial records. It attempts to determine how much truth there is in the traditional condemnation of Spanish rule under which fiscalism is said to have ruined the economy of Lombardy. Actually, the financial records also constitute the richest source of evidence for the distribution and condition of landed property, on the industrial situation, and on relations between the various social classes. The sixth chapter alone is devoted to demographic change and based upon parochial registers while the seventh, on the history of prices, is taken from the ledgers of the hospital. After an accurate investigation of the tax system, the author comes to the justified conclusion that taxation as a whole did not present an intolerable burden during a time of rising prices until the beginning of the seventeenth century. The burden became very much heavier when prices ceased to rise and, above all, when the financial impositions were increased by the expenses of military supplies, of billeting, provisioning and providing forage for troops in transit. These burdens were not only heavy in themselves, but made more onerous by the abuses to which they gave rise. Even the poorest communes were forced to pay up to escape pillaging, which involved frequent recourse to borrowing in a way which brought their indebtedness up to a frightening total. The economic decadence which all Lombardy experienced was not created but was sensibly increased by fiscal burdens. This may be traced step by step in the local industries, particularly that of cloth, flourishing in 1580 but almost completely ruined by 1650, bringing with its fall the ruin also of the dyeing industry. The conditions in agriculture were no better, being particularly bad in the lands bordering the lake where the misery of the peasants had induced a mass emmigration to Venice and Switzerland and even into more distant lands, such as Liguria, Sicily and Germany. This resulted in a marked decline in production throughout the province. There was also great fluctuation from year to year in the prices of agricultural products.

In the second volume, the author, in contrast to many historians (with the exception of Pugliese) who have been interested primarily in the economic development of Lombardy after 1748, has concentrated his research on the first half of the century. He then moves forward to the time of the well-known land tax of Maria Theresa and its effects on the economy of the region. The change of government which occurred in 1706 could not bring better conditions either at once or in a short time. The state administration and the bureaucracy remained for a long time that of the preceding regime, and, above all, the forty-two years which followed the change of government were mostly taken up with war which made necessary the same impositions as in the Spanish period. It is true that attempts were made by local and regional authorities to give new life, particularly in the capital, to the woollen and silk industries, but positive results were not seen until after 1750. More important was the decision taken in 1718 to secure greater justice in fiscal matters. The new general census of the state was in pursuit of this end and in contrast to all preceding censuses was based upon a general survey of all land regardless of the social class of owners and from which no exceptions were allowed. In 1724 the work of the surveyors was completed in drawing up maps, and in 1730 the valuations of all properties were complete. This work was rightly expected to have beneficial effects for the whole of Lombardy, save for a few vested interests, but was interrupted by the outbreak of the war of the Polish succession and could not be renewed until after the peace of Aquisgrana in the reign of Maria Theresa. But meanwhile, the condition of the entire Como region, above all its country districts, was going from bad to worse and the indebtedness of the small communes had become intolerable. Only after 1760 did the imposition of the new land tax begin to change the situation. The author adds new arguments about the benefits of these changed fiscal measures to support those advanced by Carlo Cattaneo. His use of financial records and of the new land-tax survey makes an important addition to data on the distribution of landed property in the Como region. He shows clearly how important the reorganization of public finance was for lightening the burdens of all the communes.

GINO LUZZATTO

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MARINO BERENGO. *La società veneta alla fine del'700. Ricerche storiche* (Florence: Sansoni. 1955. Pp. 360. Lire 3000).

The moving story of the decadence of Venice which slowly but inexorably worsened through the eighteenth century to the threshold of a definite collapse, during the course of the overwhelming revolutionary events at the end of the century, is told in this book with a lively sensibility and elaborate documentation from primary sources, aided by great knowledge of the bibliography and an elegant style. The author was led into this major inquiry from an initial, more limited, venture of investigating the activity of the Jacobins in Venice during the rise of the French revolutionary movement. He examines in the first three chapters the development of the political, social and economic structure (the latter confined to the agricultural sector) of the state under her Serene Highness. This investigation allows him to single out environmental conditions which made possible the emergence of new forms of cultural life under the impact of the Jacobins and the spread of revolutionary ideals—problems which are the themes of the next four chapters.

Keeping our attention on the main topics studied, we may stress the careful analysis of the political relations between Venice and her other territories. These relations were marked at the beginning by a federal regime in Terraferma, then evolved towards centralization and subjection—the source of friction between the Metropolitan city and her subject towns, of political and economic decadence, and of the isolation of the local nobility. This had the effect of turning Venetian Lombardy towards Milan and the Patria del Friul towards the Empire. If these were the negative results of the short-sighted policy of strengthening the unity of the state, it was accompanied on the social plane by a growing separation of the rural population from the people in the towns. This meant that, in addition to the centralizing policy of Venice which was based upon political, social and economic privilege, there developed that parochialism which constituted the dominant theme in the degeneration of the state. All the evidence shows the incapacity of the ruling city to maintain the historic function on which her status had depended in previous centuries, and showed her retreat (to find a support for failing economic and demographic vitality) more and more into dependance on the predominantly rural economy of Terraferma, where the nobility excessively increased its landed property. This source of the last economic fortunes of the dominant class of an imperial city did not prevent large sections of the labouring people from falling into destitution, nor avoid a decline in the traditional standards of land management. The small leaseholders could not possibly even begin the necessary reforms in the methods of cultivation or the improvement of estates. It was here that the sources of latent social conflict and economic crisis had their origin and it was in this situation that the new ideas of the *Illuministi* spread (without, however, giving rise to any moral or social revival) as the sporadic incidence of an almost masonic movement and the academic exercises of the Jacobins exemplified. The Republic died without making any proposals for its own succession.

Università degli Studi, Trieste DANIELE BELTRAMI

PIERFRANCESCO BANDETTINI. *La popolazione della Toscana allà meta dell'800.* (Turin: ILTE. 1955. Pp. 155.)

This monograph is a serious and successful contribution to the demographic history of Tuscany in which various aspects of the state of the population are examined in the light of the evidence given in the census of 1841. The most interesting results which emerge from this close scrutiny of the census records are as follows: (1) The total population of Granducato amounted to one and a half millions, of whom 20·2 per cent lived in urban areas (particularly in Fiorentino) while 66·6 per cent were scattered through the hill areas. (2) The average size of the nucleated family (5·4) was greater in rural areas than in the towns, especially in Aretino where 23·3 per cent of families had eight or more members. (3) The ratio of males to females compared with those registered in other regions in Italy, resulting in an average of 105, was higher in the hilly regions and in the country districts—above all in Senese. (4) The age composition, determined by sampling, indicated that 32 per cent of the total population were under 14 years of age and that each age group formed a lower percentage than the average in urban centres (27 per cent), and in consequence the elements of the population in the productive age groups were 64 per cent of total numbers. (5) The groups of Jews and non-Catholics concentrated in Florence, Livorno, and Pisa show peculiar demographic characteristics particularly in the balance between the sexes and in their occupational structure. (6) 54·9 per cent of the labour force was engaged in agriculture, with considerable variations in the percentages of different areas (70·7 per cent in Aretino), with 31·1 per cent of women joining in economic activity, for the most part in agriculture and in domestic service (33·9 per cent in Fiorentino). Secondary and tertiary industries were principally limited to the cities, and in particular to the territories of Florence and Pisa. (7) The numbers of clergy showed a decline from 2·9 per cent (according to the data of Parenti for 1765) to 1·08 per cent of the entire population by the census of 1841. In the appendices the author explains the reasons which led him to choose the sources examined and he explains the system of sampling adopted; problems which have interest beyond the limits of this inquiry by showing students where they may have further application.

DANIELE BELTRAMI

ANDREA SINNO. *Commercio e industrie nel Salernitano dal XIII ai primordi del XIX secolo.* 2 vols. (Salerno: Camera di Commercio. 1954. Pp. 153 and 222.) The first of these two volumes contains a substantial collection of evidence about the woollen, silk, linen, hemp and cotton industries in some parts of the Province of Salerno, particularly at Cava dei Tirreni, and the maiolica manufactury at Vietri. In the second volume, on the other hand, there is only one chapter devoted to industry (leather tanning) for it is concerned mainly with stock breeding and agriculture. This latter part is better organized and shows well the relevant advantages, particularly in Sarnese of anti-feudal legislation and the rapid and surprising progress made throughout the province in the last decades. They witnessed a large region, once infested with malaria, transformed into fruit-gardens and orchards. The evidence, collected with rare patience, on the industries is only fragmentary, scattered as it is over six centuries from the thirteenth to the nineteenth. Although this does not provide us with a firm basic for assessing the importance of industrial development, and although it seems a little odd to hear of twenty-three *fabbriche* existing about 1850 at S. Cipriano Picentino with an average annual production of sixty-five blankets valued at 13,000 lira, nevertheless much of this evidence is undeniably useful. It contributes to the history of an industry almost entirely neglected up to this time, but needs to be completed by further research more critically analysed.

Gino Luzzatto

Tommaso Zerbi, *Moneta effettiva e moneta di conto nelle fonti contabili di storia economica.* (Milan: Marzorati. 1955. Pp. 108.) This book deals with the characteristics of the monetary system and circulation in Lombardy, in particular in Milan, during the fourteenth century. The work is based predominantly on a study of the ledgers of contemporary firms. The reader will find facts and documents of great interest in this book and without doubt anyone who concerns himself in future with the monetary history of Lombardy in the Middle Ages will have to take notice of it. It is rather unfortunate that the author, who knows his documents well enough, is not equally cognizant with the bibliography on silver and it is a pity that he has not made a subject index. On p. 48 he leaves uncertain the date upon which stability of the exchange rates began in the fourteenth century, even though this date is known. On p. 52 he asserts that in the second half of the fourteenth century, there was a rise in price of silver compared to gold, even though recent research has not proved this claim. On p. 56 *et seq.* he interprets as inflationary the decree of 25 January 1391, ignoring the work of Meroni on the point, which suggests rather that the results were deflationary. Some doubt remains also on the last chapter about monies of account.

Carlo M. Cipolla

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Leopoldo Giampaolo, *La cronaca varesina di Giulio Tatto (1540–1620) ed i prezzi dei grani e del vino sul mercato di Varese dal 1525 al 1620.* (Varese. 1954, Pp. xli + 261. Supplemento della *Rivista della Società Storica Varesina.*) In the first decades of the sixteenth century the administrators of the Commune of Varese decided that one of their deputies should register officially the prices current in the city market for wheat, rye, millet and wine. From 1560–1620 the post was occupied by the nobleman Giulio Tatto. This man not only fulfilled his job with extreme diligence, but, besides prices, collected all sorts of other details—changes in the weather, in monetary exchange rates and political and social events in the city. His register becomes in effect a chronicle, which may be considered as one of the most important sources for the history of Varese in the sixteenth century. For economic history, the interest of Tatto's chronicle consists principally in its magnificent series of prices, and in the occasional references to the monetary exchanges which it includes during the epoch of the price revolution. It has been edited for the first time by Professor Giampaolo in a very careful study, which is completed with a detailed subject index. As an editor he does not confine himself to the editing of the text, but, in a long introduction of 41 pages, he has collected many details about Tatto, about the constitution of the city of Varese in his time, and about the characteristics of the city market and the nature of the prices in the chronicle. In a valuable appendix, all the scattered price data have been tabulated and a series of diagrams illustrate definitively the trends and fluctuations by yearly and monthly averages. He compares these data also with analagous price movements in the markets of Milan and Como. The general conclusion is that the movement of prices in Varese is identical with that of corresponding prices in the other two places and that from 1550–1620 the medial level of the price of grain rose about three times. Professor Giampaolo, who is not an economic historian by profession, should be particularly praised for the meticulous way in which he has furnished economic historians with material of exceptional importance for the price history of Lombardy in the sixteenth century. CARLO M. CIPOLLA

ALDO DE MADDALENA. 'I bilanci dal 1600 al 1647 di una azienda fondiaria lombarda: testimonianza di una crisi economica', *Rivista Internazionale di Scienze economiche e commerciali*, II (1955), 510–25 and 671–98. This is a brilliant contribution to the study of the initial phases of the economic decline of Italy in the seventeenth century, made possible by the analysis of the ledgers, showing the income and expenditure from 1600–47, of a large landed estate belonging to a Milanese family. The investigation of these documents (which were found in the archives of an old charity foundation in Milan) enables the author to show that the net return on capital invested in land at the beginning of the century remained at about 3 per cent up to 1624 and then fell to below 1 per cent during the next twenty years. By analysing the records of expenditure he proves that the causes of this drastic reduction were—above all—the growing incidence of fiscal burdens, the losses occasioned by the insolvency of tenants and the resulting continued decline in the amount spent on the upkeep and improvement of agricultural land. DOMENICO SELLA

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G. WENNER. *L'industria tessile salernitana dal 1824 al 1918.* (Salerno: Camera di Commercio. 1953. Pp. 73. Lire 1200.) The author of this short but interesting memoir is a member of one of the main families who, following the example of G. G. Egg and D. Vonwiller, established themselves in the south of Italy, principally in the Salerno region, and there founded the first textile manufacturies. They undertook spinning, weaving, bleaching, dyeing and printing cotton with machinery of English make, or from Winterthur, and became gradually of major importance. The author has been able to avail himself of his own family records and the state archives of Salerno, and he follows the fortunes of the Swiss industrialists from 1824–1918, stressing naturally and rightly the merits which such continuity evidences. This is found in the hard work, the organizing and commercial ability of the managers, and the skills of the technicians and the few workers specially brought from Switzerland; but also in the local workmen who could be trained very quickly. For these, too, the author does not stint his praise. Neither does he hide that the beginnings of industrial success were assisted by the Bourbon customs duty which gave more than 30 per cent protection over prices of foreign competitors. He recognizes, therefore, that the unexpected changes in the tariff legislation in 1860 brought on a grave crisis, made worse by the incidence of cholera and brigandage, but—and this is the most important issue in his book—the crisis was conquered in a few years, thanks to the tenacity and ability of Frederico Alberto Wenner, and in a few years more, after 1867, it led to a time of great expansion and prosperity. This enabled the Salerno industry to sell some of its products in northern Italy and even abroad. This period lasted, with some fluctuations, until 1897 when there began a crisis of over-production for the whole cotton industry of Italy, continuing, save for short intervals, up to the outbreak of the First World War. On this almost secular development of industry, Mr Wenner provides precise data of the number of spindles and looms, on the production of yarn and cloth, on the number of workers and their salaries. His story ends, not without a certain sadness, with the nationalist manifestations of 1917–18, which induced the Swiss to sell out all their shares to the new *Società delle Manifatture Cotoniere Meridionali* born under the protection of the Banca Italiana di Sconto.

GINO LUZZATTO

DANIELE BELTRAMI, *Saggio di storia dell'agricoltura nella Repubblica di Venezia durante l'età moderna.* (Florence: Sansoni. 1956. Pp. 78.) In the seventeenth and eighteenth centuries the economy of the Venetian republic was characterized by the growing importance which came to be acquired by agricultural lands of the Terraferma. The present work is the first of a series which the *Centro di Cultura e Civilta della Fondazione Cini* is devoting to Venetian history. In it are analysed the important trends which marked the rural economy of the republic during the last two centuries of its life. These trends consist in: (1) A decisive increase in the agricultural population, whether judged by absolute numbers or as its percentage of the total population. (2) The wide diffusion of maize growing (which, introduced towards the middle of the sixteenth century, was the most important grown by the end of the eighteenth and one of the most widely diffused). (3) The numerous works of reclamation which reduced the amount of land left uncultivated by more than 50 per cent. (4) The sale to private persons, particularly nobles, of a large part of the common land. Describing these phenomena the author is led into the question of landed property, and this second part of the inquiry is handled by sampling techniques and based upon the evidence of the official land-tax surveys of 1661 and 1741. By diligent interpretation of this data Beltrami shows, amongst other things, the progressive concentration of landed property into the hands of a few nobles and the significant spread of leasehold tenure. When these trends are considered in conjunction with the growing pressure of numbers and the inadequate growth of cultivated land, they document the critical situation in which the Venetian rural economy found itself in the mid-eighteenth century.

GIUSEPPE FELLONI

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FERDINANDO MILONE. *L'Italia nell'economia delle sue regioni.* Prefazione di Stefano Brun. (Turin: Einaudi. 1955. Pp. xiii + 1296. Lire 12,000.) We owe this work to the initiative and patronage of the *Unione Italiana delle Camere di Commercio* which, in accordance with the regional sub-divisions in the constitution of post-war Italy, took the opportunity to sponsor a study showing the diverse economic structures and potentiality of the several Italian regions. The work was begun in 1948 and has resulted in this bulky volume, the fruit of seven years' research. It is divided into sixteen regional monographs drawn up according to a scheme so that their main themes are in common. We are given detailed descriptions supported by a thorough documentation and illuminated by a deep personal knowledge of the regions concerned. Above all, we are shown with particular care the physical characteristics of each region with details of population, the condition of agriculture and industry, of commerce and transport, all with frequent reference to their historical development. The author, as is appropriate for his qualifications, concerns himself above all with analysing the spatial distribution of these phenomena and to investigating the causes which have determined the localization of different kinds of soil use, cattle breeding and industries in this or that region, of the varying density of population. In all these things, the overriding importance of the geographical environment is stressed. Although designed for other ends, this work is a particularly useful tool for the historian of the Italian economy. In it he will find for every region of our country an exhaustive description of the stable natural agents (geological conditions, morphology, climate etc.) which at all times have conditioned the activity of man. The book contains full indexes and has many accurate maps and, above all, a very full bibliography which occupies 128 pages, in large part concerning matters which are within the ambit of economic history. Its usefulness is hindered a little by the discursive technique adopted by the author, who has sometimes named sources by a paraphrase rather than by their exact title.

Carlo Livi

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GENERAL

Arthur E. R. Boak. *Manpower Shortage and the Fall of the Roman Empire in the West.* (Michigan University Press, London: Geoffrey Cumberlege. 1955. Pp. vii+169. 36*s.*)

This little book is a serious and sensible attempt to grapple with an important, if perhaps insoluble, problem. The author wisely places no reliance on modern numerical estimates, for which the data are quite inadequate. He accepts the conclusion of Mr A. R. Burn (*Past and Present*, IV (1953), 1–31), based on a study of the ages recorded on tombstones, that the population of the Roman Empire was of a nature similar to that of India or China, not that of modern Western Europe. He infers that its demographic trends in various circumstances would have been similar to those of such populations of oriental type. These populations, he states, if they decline owing to such unfavourable circumstances as wars, famines, plagues, misgovernment and oppression, take a long time to reverse the trend, and continue to decline, despite peace and good government, for a century or more. He then assembles the evidence from the second to the fifth centuries A.D. for the condition of the empire, and argues that they were such as to cause increasing depopulation from the latter part of the second century till the end of the third; and that whatever improvement in the situation resulted from Diocletian's re-establishment of order would not have checked or reversed this trend, both because the improvement was not substantial, and because of the time-lag which he had previously argued was characteristic of oriental populations in these circumstances. Finally, he adduces evidence over the same period for actual depopulation and shortage of manpower.

There are weak points in the argument. For his crucial point of the time-lag Professor Boak can adduce no reliable statistical evidence. He cites the long-term effects of the Black Death in England and the population trends of China during the whole of the Christian era. Medieval scholars still hotly dispute the effects of the Black Death, and for the population of China until recent times the evidence is no better than for the Roman Empire. Some more reliable modern figures suggest an opposite conclusion: the population of Egypt, which seems to have been static or declining for centuries, rose immediately and with rapidly increasing speed when good government was introduced by the British occupation. Professor Boak also, contrary to his own excellent principles, sometimes applies to the population of the Roman Empire results obtained from the study of populations of quite different types. He argues for instance from studies of modern urban populations of European type that the birth rate always declines in towns. There is no evidence for this in antiquity, though there is evidence that the urban death rate was higher than the rural. Again he states that slave populations always decline. This was no doubt true of American negroes, but there is no evidence that in ancient times, when the social and economic position of slaves was entirely different, the servile population consistently dwindled: the tombstones of the *familia Caesaris* at Carthage show a higher death rate than in rural Africa, but this is probably because a great town like Carthage was much unhealthier than the small towns and villages of the countryside.

Not all the evidence which Professor Boak produces for depopulation is equally cogent. He rightly regards the 'freezing' of agricultural workers, miners and similar groups of manual labourers as evidence for a shortage of manpower in these occupations. But the similar legislation on *navicularii*, decurions, the bakers and butchers of Rome and like bodies, to which he devotes many pages, is quite irrelevant. The object of this legislation was to 'freeze' their landed property, to finance public services, and there is no evidence that they diminished numerically except by migration to other occupations, with the object of freeing their property from its obligations. The drastic reduction of the *enceintes* of many Gallic towns in the third century does not necessarily prove a great diminution in the urban population. In many towns the area within the walls had never been densely occupied, and the population could never have effectively manned the fortifications: the reduction was made because the cities had for the first time to face the problem of defending themselves. Professor Boak also rather lightly brushes aside the evidence provided by the Edict of Diocletian and the *Notitia Dignitatum* for a considerable weaving industry in a number of Gallic towns. Archaeology has proved that the cultivated area in Britain was small, but Professor Boak is wrong in stating that the island produced no regular exportable surplus of grain. Ammianus clearly states that Julian's use of British grain to feed the Rhine army was not an emergency forced levy, but the restoration of an established practice. The decline of Ostia was due rather to its supersession by Portus than to a diminution of imports to Rome. The immigration of oriental traders to the West did not, as the author states, cease in the fourth and fifth centuries: there is ample evidence of their presence in Italy and Gaul down to the sixth century.

Some other points not strictly relevant to the theme of the book require correction. *Coloni* under the later empire were not normally share croppers who also provided labour services on their landlord's home farm. Labour services seem to have been very uncommon—they are attested in one document only—and rents were paid for the most part in gold, with some extras in kind. The imperial *gynaecia* were not silk but wool factories; privates in the Roman army did not wear silk. The workers in the mints and the imperial weaving and dyeing factories are implied by the Codes to have been not free persons but technically state slaves. Civil servants did not retire after twenty-five years' service: they continued to serve until they had by seniority reached the top of their office, unless they died or gave up hope before achieving that prize.

Professor Boak criticizes a tentative analysis which I put forward some years ago (*Ancient Economic History*, London, 1948) of the demographic problem of the later Roman Empire. Our views, I would suggest, are less different than he represents. I then stated that *a priori* the population of the empire might have been expected to decrease in the third century, but that this could not be proved. Professor Boak has strengthened the case for a decrease. I then argued that when relative peace and order were established by Diocletian (and also, I may add, the great epidemics which ravaged the empire in the late second and the third centuries seem to have run their course) the population might have been expected to increase but in fact remained static or declined. Professor Boak argues that a long time-lag was to be expected, but the evidence which he adduces seems to me, as I have stated above, unconvincing. I argued that the acute labour shortage in agriculture which is evident in the early fourth century might have been due as much to the increased demand for manpower by the army as to a decline in the agricultural population. Professor Boak argues that the increased demand of the army was insignificant. I think that he underestimates the increase in the armed forces, but I would agree that the figures are so sparse and unreliable that no certainty is obtainable on this question. I would also agree that the strain imposed on agriculture by the conscription was so severe because the agricultural population had always been sparse and had diminished. I then suggested that the population did not increase because the heavy burden of taxation, due to the excessive and increasing number of idle mouths which the empire supported, did not leave enough to the peasants to rear sufficient children.

With this thesis Professor Boak is, I think, in substantial agreement, though he rightly calls attention to other reasons for decline, such as civil wars, barbarian raids and internal brigandage. On one crucial point he is not altogether clear. He cites the impressive evidence for the progressive abandonment of cultivated land, but he does not say whether he regards this phenomenon as a result or a cause of a declining agricultural population. The ancient evidence is fairly clear that land was abandoned by landlords because they could not squeeze enough rent out of it to pay the land tax and make a profit for themselves. Some land may have ceased to be cultivated for lack of tenants, but there is evidence of landlords abandoning land with sitting tenants on it. Professor Boak also somewhat exaggerates the extent of the evil. He grudgingly admits that there continued to be a strong demand for land, and that great landlords drew handsome incomes from their estates. This must mean that some—the figures suggest most—land continued to yield a good return, and that it was only marginal land that was abandoned. It is significant that the highest figures for abandoned land are in Africa (particularly Byzacena) and Numidia, where owing to the climatic conditions most land yielded a small margin of profit.

I would conclude with a protest at the price put on this book. Not many scholars can afford to pay 36*s*. for 169 pages, even if they are as full of meat as those which Professor Boak has written.

A. H. M. Jones

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St Hoszowski. *Les prix à Lwow* (XVIe–XVIIe siècles). (Paris: Centre de Recherches Historiques. 1954. Pp. 232.)

During the 1920's and 1930's, impressive research in the field of price history was carried out in Poland—studies being published by Adamczyk, Furtak, Pelc, Siegel, Thomaszewski and others concerning the cities of Lublin, Gdansk, Krakow and Warszawa. Leading in this particular tradition of urban historiography was St Hoszowski, who published a book in 1928 about the price revolution in Lwow in the sixteenth and seventeenth centuries. In 1934 it was succeeded by an investigation covering the period 1701–1914. Hoszowski's pioneer study from 1928, a scholarly and exhaustive piece of research, is now available in a French edition. The description of the sources are careful, likewise the statement of the method. The material brought to light originates in accounts of town treasurers and hospitals. Moreover, four merchant accounts from the seventeenth century are especially illustrative of cloth prices. The information collected falls into the following categories: prices of goods (which are those of consumers), wages (employees, skilled and unskilled work) and interest (capital interest, rents and house rents). The tables contain yearly and decennial averages, for wheat quarterly prices. The prices are recorded both in contemporary currency (*grosz*) and in their equivalents in gold and silver. Maxima and minima are stated together with the number of price notations. To this a series of indices and graphs are added. As base period the years 1521–5 (subsidiary 1501–10) have been chosen. Mr Hoszowski has also tried to construct a cost-of-living index with Engel's Saxonian standard working-class family of 1857 as a starting-point. The trend shows a rise in the real prices from 100 to about 400 during the two centuries. At the same time, the buying power of the unskilled worker descends from 100 to about 33. The author has annotated the tables in detail. He explains their varying degree of reliability and sets forth the general, national and local factors which may have influenced the development of the prices. Hoszowski pays special attention to the course of the two financial crises in Poland during the reign of Sigismond Waza and Johan-Casimier as well as to the wars in the second half of the seventeenth century. He proves how the different stages of debasements of currency influence prices, but the demographical background is treated more summarily. The work deals also with the assizes of bread, beer and meat, which the author interprets as an expression of the policy of the Polish nobility; to some extent the same applies to salt, a semi-monopoly of the State. It is gratifying that this work is now accessible in a Western European language. Only when Hoszowski, relying on Georg Wiebe's *magnum opus* from 1895, draws parallels with developments in other countries does his study seem a little out-dated. KRISTOF GLAMANN

Copenhagen

VITORINO MAGALHÃES GODINHO. *Prix et Monnaies au Portugal, 1750–1850.* Avant-propos de Lucien Febvre. (Paris: Centre de Recherches Historiques. 1955. Pp. xvi + 371.)

The main purpose of this book is to introduce Portugal in the debate on prices and general economic history. The work falls into two parts. Part I contains tables with prices from Lisbon and the provinces. The Lisbon prices have been taken from the market lists of the town, which rather correspond to the French *mercuriales* known from the investigations of Ernest Labrousse. The main part of the material from the provinces originates in the charitable institutions, *misericórdias*, which recorded the prices of many goods and a few notations on the value of obligatory labour with reference to the payment of tithes, rents, etc. Parts of this material are somewhat reminiscent in character of Earl J. Hamilton's Spanish records. The published prices on goods are most copious, including such commodities as wheat, rice and olive-oil. A series of prices on wine from Bragança and on salt from Setubal is also worth mentioning. On the other hand, quotations of wages are few. This lack, however, does not disturb the author, for he is first and foremost interested in fluctuations and his study pays no attention to real wages or cost of living. Part II gives an analysis of price fluctuations in Portugal during the period 1750–1850. Three types are drawn up: a short cycle of four to five years, a medium cycle of about thirteen years and the general trends. In the 1780's a rising trend appears clearly; within the years 1808–17 it reaches its peak and is followed by a recession. The *baisse* lasts until about the middle of the nineteenth century and can be divided into two phases: a more vigorous descent until 1826 including all goods and all markets examined, and a more moderate, scattered descent in the following years. In two very substantial chapters on the production of money, the trade crises, and industrial growth, fluctuations in Portugal are discussed. The author's starting-point is international. Professor Godinho reports and annotates the works and theories of Kondratieff, Rostow, Hamilton, Schumpeter, Simiand, Labrousse, Lescure and others, but himself refrains from drawing any conclusions from his own research. Rightly he considers his material too weak. But in a final chapter he puts forward some hypotheses, the most important of which concerns the question of economic growth. It deals with the correlation between the fluctuations and the activity within trade and industry in Portugal, particularly in the nineteenth century. Industrial growth seems to grow out of trade depressions. Gradually a boom develops which creates a commercial rise, which once more checks industrial development until a commercial crisis marks the change over to another depression. During the *baisse* industry is then restored.

In Professor Godinho, the 'case' of Portugal has found a persistent and energetic spokesman. The reader is advised to prepare himself for a constant bombardment of arguments, facts and tables. The arsenal further includes an appendix with three reports from the French consuls in Lisbon.

Copenhagen KRISTOF GLAMANN

K. ONWUKA DIKE. *Trade and Politics in the Niger Delta, 1830–1885.* (Oxford: The Clarendon Press. 1956. Pp. vi+250. 30*s*.)

The meeting of Europe and Africa has hitherto been described almost exclusively by European historians who, using mainly European sources, have tended to depict Africans as universally the passive victims and beneficiaries of European action. The history of Africans has been classed as 'tribal history', which came to a full stop as soon as Europeans appeared on the scene and is of purely antiquarian or anthropological interest. But the mercantile states of the Bight of Biafra were scarcely more tribal than Zanzibar or Venice; and Dr Dike, a Nigerian scholar who is at home not only in the Public Record Office and the British Museum but also in the family archives and local histories of Bonny and Opobo, has been able to show, in this lively and penetrating account of their complex dealings with British traders, naval officers and consuls, that, although doomed to eclipse when Britain put out her full power, they played for a long time a by no means negligible role. He has perhaps, through a natural piety, slightly exaggerated their importance in the scheme of things. But to the many Africans who feel their self-respect to be damaged by the general blankness of their past the contemplation of Grand Bonny, where English traders once 'cringed to win King Opubu's favours', should certainly provide a more solid satisfaction than that of Ghana or Zimbabwe.

His general thesis is a simple and incontrovertible one, that in Nigeria the flag followed trade and could scarcely have failed to do so. Early in the nineteenth century the Royal Navy arrived in the Bight of Biafra. It came solely to suppress the external slave trade and without thought of political intervention. But once it was on the spot it was inevitable that British palm-oil buyers should have invoked its aid in their dealings with the Delta middlemen, and almost inevitable that, with however many misgivings and reluctances, it should have answered their call. Dr Dike sees clearly that as soon as a British warship had dropped anchor in Bonny river the independence of the Delta states was really at an end; and though its passing makes him a little sad he is from then on as impatient as any 'imperialist' historian with the slowness of the British political advance, with the hesitant and inconsistent interventions which weakened the authority of the African states without substituting any alternative system of order. It is interesting, too, that his sympathies are engaged more by the constructive capitalism of Macgregor Laird than by the 'didactic and pious' negrophily of the anti-slavery enthusiasts.

It is evident that trade interests him only because it was the raw material of politics. There is not to be found here any very systematic study of its terms or even of its volume. But, indeed, the exchange of Nigerian palm-oil for European manufactures produced at all times so huge and undoubted an increment of value that the details are of only secondary importance. The main question was the essentially political one of the structure of the trade, that is, of the competition between various groups for a preponderent share of the proceeds. Geography had given the peoples of the labyrinthine Delta a strategic control, which their political organization enabled them to exploit, over the external commerce of a vast area. During the first half of the period European merchants did not dispute this control, but countered it by combination amongst themselves and by the pre-emptive use of credit. It was not however a straight clash of European and African interests, for new entrants on the European side were natural allies of the African traders. From the middle 1850's, on the other hand, after the steamship and prophylactic quinine had removed the natural impediments to European penetration of the interior, all the parties with vested interests in the old pattern of trade formed a united front against the new and more formidable class of interlopers who were trying to make direct contact with the producing regions. The conflict lasted for about four decades, until the interlopers, united in the Royal Niger Company, established in their turn a monopoly control of trade. Dr Dike rather oddly breaks off in the middle of this struggle, with the power of Ja Ja, ruler of the Delta state of Opobo, still unbroken and that of the Niger Company still unconsolidated. However, it appears that he has paused only to draw breath, and we shall look forward to the sequel—especially if it can be given the final polish which the present volume rather irritatingly lacks.

C. C. Wrigley

Institute of Commonwealth Studies

S. Kuznets, W. E. Moore and J. J. Spengler (eds.). *Economic Growth: Brazil, India, Japan.* (Duke University Press, London: Cambridge University Press. 1956. Pp. xi+613. 94*s*.)

The economic growth of underdeveloped areas has elicited a vast amount of theorizing and a small amount of detailed research. We still have little more than unauthenticated explanations of the varying rates of progress in different countries and in some cases, such as India, even the past trend of so significant a variable as per-capita income is controversial. This is only partly due to the paucity of statistical data; it is also due to the failure of economic historians to devote the time and labour necessary to investigate the considerable material which does exist. Some of the articles in this book show what can be done.

Eighteen papers, some of which have been published elsewhere, have been collected in this volume. There are three parts. The first discusses general trends in agriculture, industry and income in the three countries. It is prefaced by an illuminating analysis by Kuznets of the statistical, methodological and similar problems raised in a study of this kind. There are two articles on economic trends in Brazil, well fortified by statistics whose accuracy is admittedly dubious. Ch. III of Lockwood's excellent and well-known work on Japan is adapted, and there is a contribution by Reubens on foreign capital and domestic investment there. This stresses that although foreign loans to Japan (direct investment was rare) were important at certain periods they played a relatively minor role in the country's rapid progress. Thorner's article on India devotes too much space to the exhumation of early estimates of national income by people like Digby and Naoroji, whose prejudiced works should be left buried, and not enough to more recent research on the subject. His conclusions are challenged later in this volume by Kingsley Davis, who writes that 'Thorner's thesis of a declining national product is belied by his own data'. Davis himself, while admirable in the general demographic field, seems to be on very uncertain ground when discussing national income.

The relationship between population and economic growth is a vital if complicated problem, and the second part of this book is rightly devoted to it, with prefatory remarks by W. E. Moore. The contrasting demographic experiences of Brazil, India and Japan offer numerous roads of research, the way to which is pointed out in the articles here. Davis also discusses briefly some of the social obstacles to growth in India, and warns that these plus population difficulties 'are too great for a few billion dollars in foreign aid or the praise of democratic freedom to clear up'.

The papers in part III, introduced by J. J. Spengler, are concerned with social systems and the role of the state. Government intervention in the economic sector was notable in all three countries, especially in Japan, although even here 'the real drive and momentum lay in large measure outside...state activity'. There is an article by Helen Lamb which maintains that the backwardness of India is simply explained in 'the colonial relationship [which] subordinated India to British political and economic interests'. All the old arguments of the Indian nationalists about the 'drain' and the excessive cost and bad layout of the railways are resurrected. There is some truth in Miss Lamb's thesis but her generalizations will have to be substantiated from more original sources than Palme Dutt, Lajpat Rai and K. T. Shah if she expects them to carry weight.

Excellent features of this volume are its emphasis on the relation between social structure and economic growth, and its attempt to bring together the research of various relevant disciplines. It could have been shorter (and cheaper), but it will surely be regarded as an outstanding work in the field of economic development. It will, one hopes, stimulate more detailed research of Brazil, Japan and India and encourage comparative studies of other areas.

Peterhouse, Cambridge W. J. MACPHERSON

G. R. BARKER. *Some Problems of Incentives and Labour Productivity in Soviet Industry. A contribution to the Study of Planning in the U.S.S.R.* (Oxford: Basil Blackwell. Pp. xii + 129.)

This booklet on Soviet policies with regard to labour incentives in industry contains a useful and well-organized historical account, sprinkled with some interesting detail information and some general thoughts. Monographic tracts of this sort are a very welcome addition to the literature of the field, and it is to be hoped that additional contributions to this series will appear in quick succession.

Nevertheless, some aspects of this study are disappointing. It is not based on any original statistical work by the author (with the single exception of a little computation of average duration of industrial employment in 1930—p. 69). Nor does the author always utilize the results of original statistical work performed by other scholars. Presumably, the trail-blazing work by W. Galenson (*Labour Productivity in Soviet and American Industry*) appeared too late to be consulted. But there was no need to use the distorted official data on productivity as is done on p. 67; there was every reason to use Donald Hodgman's index of Soviet industrial output instead, and it is somewhat discouraging to see that in such a narrow field as that of Soviet economic research, results of basic pioneering studies can be so thoroughly ignored.

From the economic historian's point of view, some interest is engaged by Mr Barker's suggestion that in backward countries outstanding performance by a worker carries special recognition and forms status, independent of money earnings. 'In this respect', Mr Barker concludes, 'backward countries undergoing late industrialization today have a potential advantage in the form of a living tradition of non-acquisitive motives....' (p. 14). One is tempted to doubt both the observation and the inference. What tends to excite admiration in backward countries is not excellent work as such, but work as a piece of showmanship (heavy weight lifting, etc.), a bravado, usually coupled with aversion from any dull regularity. This is precisely the type of work an industrial society has little use for, and one might argue that the Russian predilection for *shturmovshchina* (i.e. for those hectic, nerve-racking and machine-wrecking spurts before the end of a planning period and following a long stretch of wasteful inertia) is the unhappy consequence of such pre-industrial attitudes to work.

The author is not quite unambiguous on the importance of 'non-acquisitive' incentives in Soviet Russia. It seems fair to say that his whole study reveals the central role of monetary rewards in present-day Soviet industry. Therefore, the emphasis which, in the concluding pages of his study, the author comes to place on what he calls 'contributive' incentives is quite surprising: 'A trend which is still continuing appears to have emerged towards relying more and more on "contributive" motives in the minds of workers and less on the desire for personal financial gain' (p. 126).

This reviewer's impression, strengthened by the material presented by Mr Barker, is that since the days of the First Five Year Plan, the 'trend' has been all in the opposite direction. On the other hand, one can only agree with the author when (on p. 112) he argues—though perhaps in an unduly veiled and complex language—that greater reliance on non-acquisitive incentives, if feasible, would make it much easier for the Soviet government to pursue its traditional policy of keeping the rate of investment as high as possible and the rate of consumption as low as possible.

ALEXANDER GERSCHENKRON

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EUGENE ROTWEIN (ed.). *David Hume. Writings on Economics.* (Nelson. 1955. Pp. cxi+224. 30*s.*)

Historians of economic thought, in their continual revisions of judgment of men and ideas, swing between acclaiming powers of abstraction and logic, and the sense of historical interdependence and evolution. Where do we stand with David Hume? In the main, from the economic point of view, his ideas have been presented in the form of stimulating prolegomena, for *ad hoc* purposes. The student of trends in policy attitudes has long saluted him as sounding his trumpet outside the already cracking walls of mercantilism. Some have noticed, but fewer emphasized, Hume's sociology, his insistence upon the importance of the assumptions made about human reactions. But it is the analysts who have acclaimed him, and in fact, largely claimed him.

What if we abandon these external and partial points of view, and take up our ground alongside Hume himself? It has frequently been observed that Hume wrote in a commercial society, not an industrial one (his published contribution to economics was complete before the 1750's ended). But he also wrote at a critical point in philosophical speculation. The implications of the empiricism of Locke required to be worked out. This was Hume's major task: the clarification of the problem of the human percipient, as posed by his master. To this problem Hume's *Treatise of Human Nature* (1739) was devoted. The outcome of this work is, from the point of view of economics, curious, but important. Hume found the empirical approach, through man, barren and pessimistic; but the emphasis on man and psychology is not abandoned. When, in the 1750's, he devoted himself to economic speculation, the human percipient and human reactions are fundamental to his approach.

This is the point of view excellently presented by Professor Rotwein in his introduction. It is an insistence upon the essential unity of Hume's thought. His economics are part of the search for a scientific approach to man. He and his contemporary moral philosophers, are universalists, like their predecessors, the schoolmen, but it is now man, not the Deity, from which speculation starts.

Professor Rotwein thus distinguishes the leading ingredients of Hume's attitude as an emphasis on a psychology of motivation, considered in terms of the historical process. In this light, Hume's celebrated contributions to the technical apparatus must be regarded. His monetary thought, with its pioneer statement of the quantity theory, the specie-flow mechanism, and the problem of economic activity as affected by monetary policy, is shot through with a historical emphasis on real factors and psychological response to change. It is considerations of 'manners and customs', and the 'spirit of industry' upon which emphasis lies. So too with interest theory. For Hume, the mercantilist insistence upon the supply of money as the major determinant of interest rates, is mistaken. It is to real saving that we must look, especially to the attitudes which condition it. This approach produces the antithesis between rentier-owner and active merchant. The former is a big spender in the attempt to escape vacuity. The latter is a big saver, not so much because he is ridden by some puritan inhibition about consumption, but because, stimulated by the 'quick march of the spirits' that accompanies his activities, he not only has no need to seek consumption pleasures, but actively seeks to accumulate, because this is a necessary condition for an extended stake in the game. In tax policy, too, there is the same insistence upon the psychological reaction to burdens.

But was Hume really as 'genetic and evolutionary' as Professor Rotwein claims? Adam Smith is compared adversely with Hume in this respect: he is accused of abstracting from historical influences ('the desire of bettering our condition...comes with us from the womb', or the 'innate disposition...to truck and barter'). Does Hume escape this charge? Consider his antithesis between landowner and merchant. Did not the landowner often escape vacuity by the heavy and exciting responsibilities of local and central government, was he not a considerable investor in commercial, industrial, and transport undertakings, was the receiving of rents always wholly passive? Was there not plenty of evidence that the merchants would take safeguards against too much risk and challenge? Again, the very basis of Hume's view of motivation—that man enjoys the game for its own sake, though it was a valuable corrective to theories which made everything depend on maximizing the outcome, was nevertheless a statement of universal psychology. These are the inherent weaknesses of a science of man that looks for universals. Hume's kind of psychology though it brought behaviour to the forefront, was essentially unhistoric.

There is a further difficulty. Professor Rotwein implies that, though Hume's thought takes off from Locke, he largely escaped the spell of the contemporary Newtonian physics. But there is a good deal of mechanistic equilibrium in Hume's economics; at least those who have started from the *Essays* rather than the *Treatise* have thought so, and acclaimed it. His treatment of money flows between trading nations is surely a classic emphasis on automatic equilibrium. On the problem of variations in the money supply Keynes was explicit (*General Theory*, p. 343, n. 3): 'For Hume began the practice of stressing the importance of the equilibrium position as compared with the ever-shifting transition towards it.'

But Professor Rotwein's intention is to give us an *internal* study of Hume's economics—he is concerned with relating the elements to one another, and for this reason he is naturally led to the unifying influence he stresses. Yet in presenting Hume's economic writings it might have been wise to take an external view also, for if this is done, it is no longer so obvious that Hume was of the historical rather than the analytical school.

For all this, Hume was content to leave much of his economics in an elliptical form; to give the world the benefit of his brilliant insights without too rigorous a pursuit of system. But how much of his status as a 'modern' socio-economist depends on the fact that he was content with loose ends?

Professor Rotwein provides us with a valuable little book—Hume's economic writings in accessible and pleasant form, including such of his correspondence as is relevant, together with an introduction which, though it may be something of an over-corrective, is most stimulating. S. G. Checkland

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M. I. Finley. *The World of Odysseus.* (Chatto and Windus. 1956. Pp. 192. 15*s.*) In this lively study the author argues that Homer was a poet (or poets) writing in the seventh century B.C. and describing with some accuracy and consistency the society of the tenth and ninth. This society is based on the household, or *oikos*, on the kin, and on the community. Guest-friendship and marriage ties reinforce the weakness of the individual, and find concrete expression in an elaborate system of gift-exchange, which accompanies almost all aspects of friendly social intercourse between equals. Throughout this aristocratic world the 'hero' alone matters. For him obligations are personal, not feudal. Kingship exists only precariously. The main end of life is honour, asserted by the symbolism of the battle trophy and the accumulation (and bestowal) of treasure. Since the world revealed in the recently-deciphered Pylian and Mycenaean tablets, social machinery has been simplified and decentralized, wealth has diminished, and institutions have grown more primitive. Both the economic basis of this society and its morals and values are fully analysed. The results are of prime importance to anyone interested in early Greece. True, the dating of 'Homeric society' to the tenth and ninth centuries seems a little arbitrary. One may indeed wonder if Homer so completely reflects a definite historical society at all. The virtual absence of the Dorians from the poems suggests that at least the basic stories arose before the Dorian invasion, and if this is so, it would be odd if nothing had survived of the Mycenaean social background. To take one example, the seven cities in Messenia which Agamemnon promised Achilles hint at some kind of feudal overlordship more appropriate to 1200 than to the ninth century. Homer may contain more of Mycenae—and perhaps of the seventh century too—than Finley allows. But this cannot be argued in a brief notice: so let it simply be said that this book is one of the most important and original Homeric studies of recent years. F. W. Walbank

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S. D. Zagoroff, Jenö Végh and Alexander D. Bilimovich. *The Agricultural Economy of the Danubian Countries 1935–45.* (Stanford University Press. 1955. Pp. xiv + 478.) This volume is a publication of the Food Research Institute at Stanford University and is one of a group of studies on Food, Agriculture, and World War II. A little less than three-fourths of the volume consists of four independent studies on Bulgaria, Hungary, Rumania and Yugoslavia, each written by a specialist who lived in the country he writes about during most of the period concerned. The name of the Rumanian expert is not indicated. Largely (but not exclusively) on the basis of these essays, the Bulgarian author, Dr S. D. Zagoroff has written a general survey which fills a little more than one-fourth of the book. The arrangement of the five studies is not identical, but all five deal with three main topics: the position of agriculture in the national economy, the social background of agriculture, and the food supply. Basic to all three topics is the evaluation of the size of agricultural population and manpower. The results are inevitably linked to the unsatisfactory state of information. The table, p. 11, is thus based on census returns ranking over a whole decade. The use of the concept 'Labour Force in Agriculture', including female workers as returned in the statistics of each country, betrays, however, too great a reliance on the accuracy and comparability of census data. Female labour is used in agriculture to a very different extent in various countries and regions, but the way in which these differences are reflected by the statistics also depends on other factors, such as the definition of 'agricultural work', and the psychological attitudes to the topic of female labour. Thus, when Dr Zagoroff analyses the net product of agriculture per head of agricultural labour force (p. 19), he over-stresses the difference in the economic level of agriculture in Hungary as compared with the other three countries. If the comparison were made on the basis of male labour force only, or on the basis of total population dependent on agriculture—both concepts are less biased than that of total agricultural labour force—the difference between Hungary and the other countries would more closely reflect the difference in output per hectare. The same use of a statistical concept has also influenced the analysis of the food supply. When we find that the calorie output per unit of agricultural labour force is so much greater in Hungary (Table 22, pp. 88 *et seq.*), the consistency of this result with the previous one may not be wholly due to the choice of statistical concepts but the degree of difference between the countries is affected to an appreciable extent. For the comparative analysis of the development of food supply per head of the population a new method had to be found, since basic data did not allow the computation technique normal at the consumption stage. Instead, statistics on production of crops (for food and fodder) have been used for evaluating the basic availability of calories, directly for human consumption in the food crops and indirectly, through animal production, in the fodder crops. After this operation, and with appropriate deductions for processing losses, exports, etc., it is found that the food supply per head in the 1930's was on a not very different level in all four countries (2,600 to 3,000 calories per head). The over-all level of *per capita* food supply is found to have dropped to 80 per cent of the pre-war level in the second war triennium (1943–5) but this average covers very different situations in individual countries. With only 59 per cent of the pre-war level, Yugoslavia must have reached the starvation level. The analysis of the social background includes an account of the changes in land tenure and related subjects, sometimes right back to the Roman colonate. This historical treatment is mainly incidental to the main topic, since nothing much happened to the agrarian structures during the period analysed. There is also a brief introduction to the geographical conditions of agriculture in each area. FOLKE DOVRING

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SIMON KUZNETS. *Economic Change: Selected Essays in Business Cycles, National Income and Economic Growth.* (Heinemann. 1954. Pp. vii + 133. 15*s.*) This is a collection of eleven essays, nine of which have been previously published (though not all in English) while the two remaining were given as lectures. They cover the period 1930–50 and demonstrate the range of subject matter and approach which is characteristic of Professor Kuznets' work. They are essentially non-technical in the sense that practically all would be intelligible to the layman not versed in economic method and controversy, and some admirable introductory reading for students embarking on the subject. Professor Kuznets may well claim that his interest in economic change, 'the common concern of these essays' to quote his own words, and in economic growth was well established before these problems became as fashionable as they are today. Moreover, his method is an admirable combination of the appreciation of historical material, a grasp of economic method, and the use of statistical data, for Professor Kuznets is profoundly aware of the limitations of his own analysis. Of the first three essays, two deal with business cycle theory, and as being pre-Keynesian are more of historical interest in that they demonstrate how far in advance of most orthodox theorists Kuznets was; one, rather technical in its approach, is an attempt to verify the working of the accelerator principle in the American economy over the period 1891–1930. The third is a brilliant if short discussion of the distinction between static and dynamic economics, the main conclusion being that 'the static scheme in its entirety is neither a basis nor a stepping stone towards a proper treatment of dynamic problems'. Essays 4 and 5 deal with the same subjects—the relation between economic trends and business cycles—one as a review of Schumpeter's *Business Cycles*, the other a hitherto unpublished lecture. The Schumpeter review is as good an introduction to this highly important field of study as anyone could wish for; the lectures urging 'the need to revive the study of economic trends' and 'to rescue it from the neglect into which it has fallen since the days of the classical school' has certainly been answered in full measure. Essays 6, 7 and 8 are all national income studies, and all provide value as literary additions to fields that are sparse and embarrassing when it comes to recommending those embarking on the subject on what to read. The essay *National Income and Economic Welfare* in particular shows the limitations of using national income as a measure of economic well-being. *Retardation of Industrial Growth* was originally published in 1929 and is as significant in its analysis now as it was then, while *The Foreign Economic Relations of the United States* in 36 pages gives the stimulus for as many D.Phil. theses. As Professor Kuznets modestly puts it, they are truly essays, the result of efforts to deal with complex problems by simple methods; but they show too that intellectual obsolescence has made remarkably few inroads into the substance or the form of his ideas.

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